



**FINAL**



**ENVIRONMENTAL ASSESSMENT FOR CONSTRUCTION OF PHASE II  
OF THE DORMITORY PROJECT**

**December 2002**

**AIR FORCE FLIGHT TEST CENTER  
ENVIRONMENTAL MANAGEMENT  
EDWARDS AFB CA 93524**

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**FINDING OF NO SIGNIFICANT IMPACT (FONSI)  
FOR THE CONSTRUCTION OF PHASE II OF THE DORMITORY PROJECT**

**1.0 INTRODUCTION**

The 95<sup>th</sup> Civil Engineer Group, Comprehensive Planning Branch, proposes to construct a new 128-person dormitory. The attached Environmental Assessment (EA) documents the evaluation of four siting alternatives. Alternative A – South Muroc Site, Alternative B – Split Popson Site, Alternative C – Airmen's Drive Site, and Alternative D – Airmen's Drive/Rosamond Boulevard Site.

The No Action Alternative was also evaluated. Under the No Action Alternative, construction of the new dormitories would not occur and, therefore, no change to the existing environment would occur at Edwards AFB.


As the attached EA documents, no significant impacts would occur to the environment of Edwards Air Force Base (AFB) if any of the alternatives were implemented, provided the required mitigation measures were followed.

**2.0 ANTICIPATED ENVIRONMENTAL EFFECTS**

As documented in the attached EA, the components of the natural and manmade environment analyzed for potentially significant environmental effects include: Land Use, Air Quality, Safety and Occupational Health, Hazardous Materials and Waste, Biological Resources, Geology and Soils, Socioeconomics, Infrastructure, and Environmental Justice and Protection of Children. Standard operating procedures already in place at Edwards AFB in order to comply with applicable Federal, State, and local laws, regulations, and Air Force Instructions will ensure the action does not result in a significant impact.

**3.0 FINDINGS**

A Finding of No Significant Impact is made for all of the alternative actions. This finding is based upon the analysis documented in the attached EA and relies upon adherence to the applicable mitigation measures identified in the EA. Background information that supports the FONSI and the attached EA is on file at Edwards AFB. This information can be obtained by contacting AFFTC/EM, Attn: Mr. Gary Hatch, 5 East Popson Avenue, Building 2650A, Edwards AFB, CA, 93524-1130.

  
ROBERT W. WOOD, Director  
Environmental Management

Date: 3 Jan 2003



Environmental Assessment for Construction of Phase II of the Dormitory Project  
Edwards Air Force Base, California  
AF Form 813 #99-217

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Prepared by:

**JT3/CH2M HILL**  
**FLIGHT TEST SUPPORT CENTER**

The views, opinions, and findings contained in this report are those of the author(s) and should not be construed as an official Department of the Air Force, Air Force Materiel Command (AFMC), position, policy or decision, unless so designated by other documentation.

For:  
Air Force Flight Test Center  
Environmental Management Directorate  
Edwards AFB CA



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ROBERT W. WOOD, Director  
Environmental Management

Date: \_\_\_\_\_





## COVER SHEET

### FINAL ENVIRONMENTAL ASSESSMENT FOR CONSTRUCTION OF PHASE II OF THE DORMITORY PROJECT, EDWARDS AIR FORCE BASE, CALIFORNIA

- a. Lead Agency: U.S. Air Force
- b. Cooperating Agency: None
- c. Proposed Action: *Final Environmental Assessment for Construction of Phase II of the Dormitory Project, Edwards Air Force Base, California*
- d. Inquiries on this document should be directed to the Air Force Flight Test Center, Environmental Management (AFFTC/PA), Attn: Gary Hatch, 5 East Popson Avenue – Building 2650A, Edwards AFB CA 93524-1130, (661) 277-1454 or e-mail gary.hatch@edwards.af.mil.
- e. Designation: Final Environmental Assessment (FEA)
- f. Abstract: Pursuant to the *National Environmental Policy Act of 1969*, this FEA has been prepared in order to analyze the potential environmental consequences of the proposed action. The proposed project would involve the construction of 128 dormitory units and the demolition of 4 old dormitories. This document analyzes four different siting locations for potential dormitory construction. Potential environmental impacts include:
  - 1) The generation of approximately 5.37 tons of volatile organic compounds and 16.68 tons of oxides of nitrogen; exposure of personnel to asbestos-containing material (ACM), lead-based paints (LBP), and polychlorinated biphenyls (PCBs); use of hazardous materials, and generation of hazardous and solid waste; disturbance of desert tortoise and migratory birds; use of fill material; and the disruption of utilities and traffic systems.
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## LIST OF ACRONYMS AND ABBREVIATIONS

95 CEG/CEC	95 <sup>th</sup> Civil Engineer Group
95 CEG/CEF	95 <sup>th</sup> Fire Department
95 SFS/SFOL	95 <sup>th</sup> Security Forces
ACM	asbestos-containing material
AF	Air Force
AFB	Air Force Base
AFFTC	Air Force Flight Test Center
AFFTC/EM	Air Force Flight Test Center/Environmental Management
AFFTCI	Air Force Flight Test Center Instruction
AFFTC/EMCC	Air Force Flight Test Center Environmental Management Compliance Branch
AFFTC/EMXC	Air Force Flight Test Center Environmental Management Conservation
AFFTC/PA	Air Force Flight Test Center Public Affairs
AFFTC/SE	Air Force Flight Test Center Chief of Safety
AFI	Air Force Instruction
AFOSH	Air Force Occupational Safety and Health
AFPD	Air Force Policy Directive
AFRL	Air Force Research Laboratory
AGE	aerospace ground equipment
AICUZ	Air Installation Compatible Use Zone
ARG	Assessment Review Group
AST	aboveground storage tank
AVAPCD	Antelope Valley Air Pollution Control District
BACT	Best Available Control Technology
bhp	brake horsepower
Btu	British thermal unit
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
Cal-EPA	California Environmental Protection Agency
Cal-OSHA	California Occupational Safety and Health Administration
CARB	California Air Resources Board
CCR	California Code of Regulations
CDW	construction/demolition waste
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO	carbon monoxide
DRMO	Defense Reutilization Marketing Office
DOD	Department of Defense
EA	Environmental Assessment
ECAMP	Environmental Compliance Assessment and Management Program
EIR	economic impact region
EO	Executive Order

EPCRA	Emergency Planning and Community Right-to Know-Act
ERP	Environmental Restoration Program
ESA	Endangered Species Act
FEA	Final Environmental Assessment
HAP	hazardous air pollutant
HWMP	Hazardous Waste Management Plan
ICE	internal combustion engine
JPL	Jet Propulsion Laboratory
KCAPCD	Kern County Air Pollution Control District
L <sub>dn</sub>	day/night equivalent noise level
LBP	lead-based paint
MBTA	Migratory Bird Treaty Act
MDAQMD	Mojave Desert Air Quality Management District
MSDS	Material Safety Data Sheet
mph	miles per hour
NAAQS	National Ambient Air Quality Standards
NASA	National Aeronautics and Space Administration
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NRCS	Natural Resource Conservation Service
NSR	New Source Review
NO <sub>x</sub>	oxides of nitrogen
OSHA	Occupational Safety and Health Administration
O <sub>3</sub>	ozone
PCB	polychlorinated biphenyls
PIRA	Precision Impact Range Area
PM <sub>10</sub>	particulate matter less than or equal to 10 microns
PTE	potential to emit
ppm	parts per million
RCRA	Resource Conservation and Recovery Act
SCS	Soil Conservation Service
SIP	State Implementation Plan
SO <sub>x</sub>	sulfur oxides
sq mile	square mile
SWPPP	Stormwater Pollution Prevention Plan
TLC	total lung capacity
TSCA	Toxic Substances Control Act
TTLC	Total Threshold Limit Concentration
USACOE	United States Army Corps of Engineers
USAF	United States Air Force
USC	United States Code
USDA	United States Department of Agriculture
U.S. EPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank

VOCs	volatile organic compounds
$\mu\text{g}/\text{m}^3$	$1 \times 10^{-6}$ grams per cubic meter
$\mu\text{m}$	$1 \times 10^{-6}$ meters

## **1.0 INTRODUCTION**

The construction of a new 128-person dormitory as proposed by the 95<sup>th</sup> Civil Engineer Group, Comprehensive Planning Branch, was addressed in a previous environmental document titled *Abbreviated Environmental Assessment for the Construction and Demolition of Dormitories and the Construction of Airman's Drive, Edwards Air Force Base, California* (Air Force Flight Test Center [AFFTC] 1995). This Environmental Assessment (EA) addresses the revised project to construct 128 new personnel dormitory units in a second phase.

### **1.1 Purpose and Need**

The existing wooden dormitories (Buildings 2410, 2411, 2413, and 2418), constructed in 1952, are poorly suited for the hot, dry climate of Edwards Air Force Base (AFB). The desert climate has caused the wood to dry and crack. Seismic activity can cause these buildings to sway, further impacting these aging structures. Space authorizations have changed over the last 40 years; as a result, the dormitory rooms are now considered to be undersized and substandard. The use of asbestos-containing materials (ACMs), lead-based paints (LBPs), polychlorinated biphenyls (PCBs) and other hazardous materials throughout these buildings makes renovations costly.

A total of 128 dormitory units are needed in order to provide modern, updated facilities for unaccompanied, enlisted personnel. The previously completed EA examined different ways to provide modern, updated facilities, and construction of the new dormitories was chosen. The focus of this EA is to evaluate alternative siting locations for the construction of the remaining phase of the dormitory project consistent with the provisions of the *National Environmental Policy Act of 1969* (NEPA).

### **1.2 Location and Scope of the Proposed Action**

Edwards AFB is located in the Antelope Valley region of the western Mojave Desert in Southern California. It is about 60 miles northeast of Los Angeles, California. The Base occupies an area of approximately 301,000 acres or 470 square miles. Portions of the Base lie within Kern, Los Angeles, and San Bernardino counties (Figure 1).

Proposed project activities would be located in the Main Base portion of Edwards AFB. Specifically, project activities from all of the alternatives would be located west of North Muroc Drive, south of Methusa Road, east of Fitzgerald Avenue, and north of Rosamond Boulevard (Figure 2).

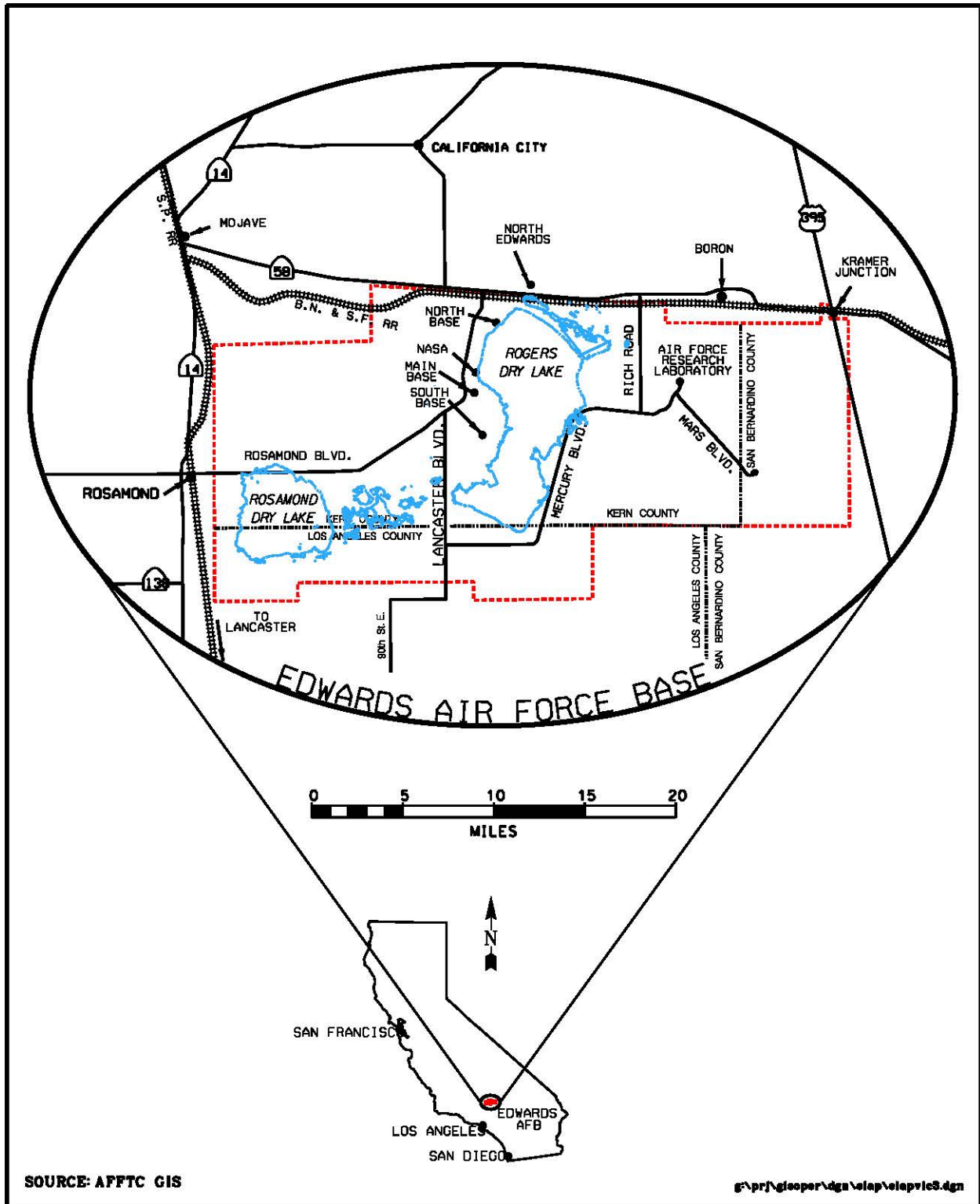


Figure 1 General Vicinity Map

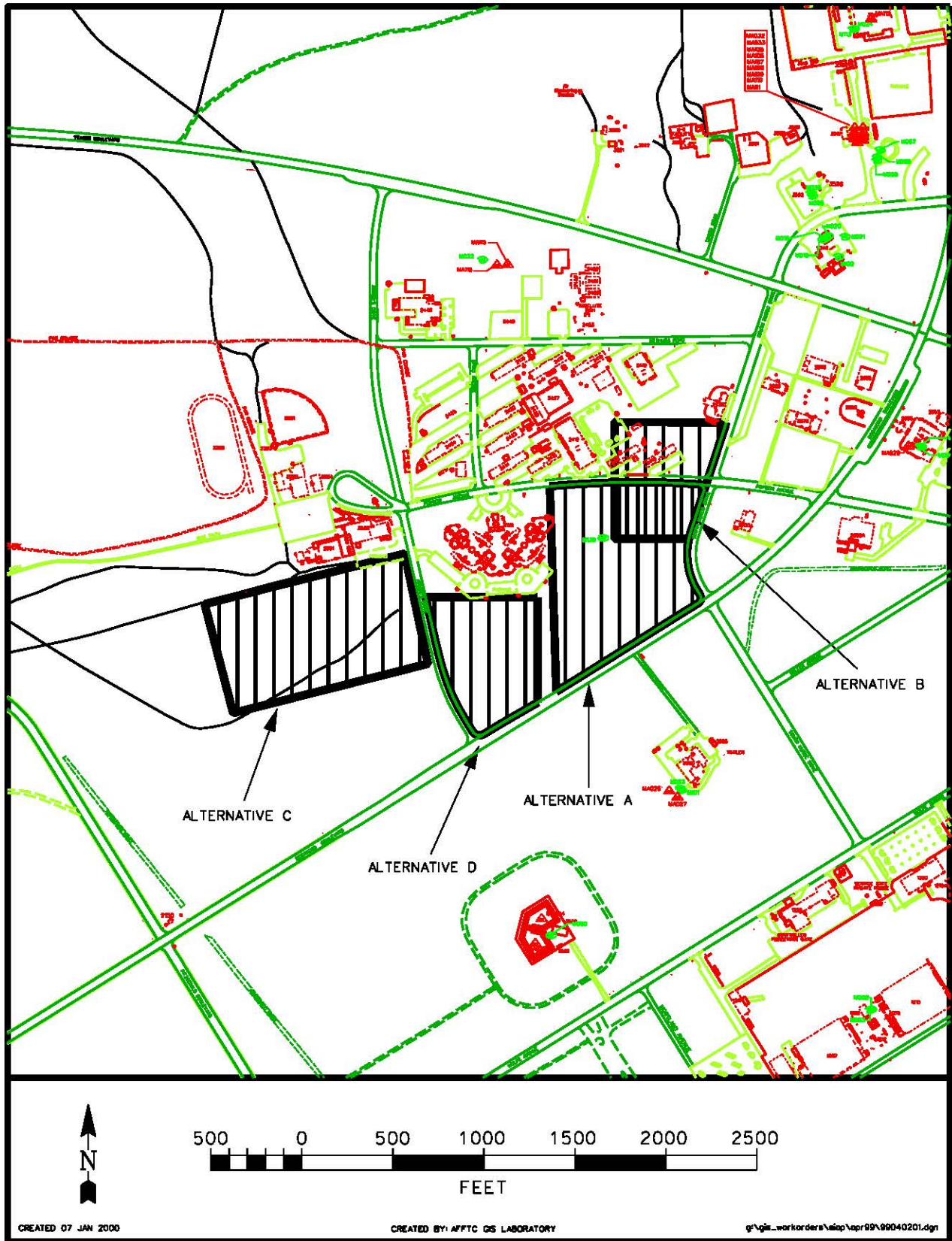


Figure 2 Project Location Map

### 1.3 Issues and Concerns

#### 1.3.1 Issues and Concerns Studied in Detail

During the scoping process, the following issues and concerns were identified as requiring assessment when considering the potential environmental impacts of the alternatives:

- a. Land Use – The proposed project would be compatible with the *Design Standards of the Edwards Air Force Base Comprehensive Plan* (AFFTC 1997a). The potential exists for nearby personnel to be annoyed by construction and demolition noise.
- b. Air Quality – Air emissions would be generated from mobile and stationary sources associated with construction and demolition activities. Hazardous air pollutants (HAPs) would be generated during construction and operation of the dormitories.
- c. Water Resources – A short-term, negative impact to water quality during dormitory construction from surface run off into storm drains would occur.
- d. Safety and Occupational Health – A short-term, negative impact to safety and occupational health could occur during demolition activities. During these activities, construction personnel could be exposed to ACM, LBP, and PCBs. A long-term, positive impact would occur from placing unaccompanied enlisted personnel in dormitories free of ACM, LBP, and PCBs.
- e. Hazardous Materials and Waste – Construction and demolition activities would use hazardous materials and generate hazardous waste. Additionally, construction of the new dorms and demolition of the existing dorms would generate solid waste.
- f. Biological Resources – Desert tortoise (*Gopherus agassizii*), listed as threatened under the Federal *Endangered Species Act* (ESA), may wander into the area from adjacent habitat during project activities or may be encountered during the use of approved on-Base borrow pits. Nesting migratory birds, protected under the *Migratory Bird Treaty Act* (MBTA) may be disturbed if demolition activities occur during the nesting season.
- g. Geology and Soils – A large quantity of fill material may be required to level the area during construction activities. Demolition and construction activities have the potential to cause limited amounts of soil erosion. Eight minor faults are known to be present within the boundaries of Edwards AFB, therefore, the Base is subject to earthquake activity and associated seismic hazards.
- h. Socioeconomics – Construction of the new dormitories would provide an incremental positive increase in revenues generated in the surrounding communities. Demolition activities must be conducted in compliance with Title V of the *Stewart McKinney Homeless Assistance Act*, 42 United States Code (USC) 11411 et seq.
- i. Environmental Justice and Protection of Children – Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (11 February 1994), requires Federal agencies to identify and address disproportionately high adverse effects of its activities on minority and low-income populations. This action has been reviewed in accordance with EO 12898. Given that the construction of the dormitories would occur entirely on Base, the United States

Air Force (USAF) has determined that this action has no substantial, disproportionate impacts to minority and low-income populations.

- j. Infrastructure – During project activities, the potential exists for traffic problems associated with the transportation of material and equipment. Underground utility lines and sewer lines could be severed and service interrupted during construction and demolition activities. A utility survey will be required prior to construction activities.

### **1.3.2 Issues and Concerns Eliminated From Detailed Study**

The following issues and concerns were initially considered, but subsequently eliminated from further consideration in this EA:

- a. Cultural Resources – It has been determined that construction of the dormitories in any of the alternative locations would have no effect to cultural resources (Norwood 1999).

### **1.4 Decision That Must Be Made**

The decision that must be made is whether to construct new dormitory units and at which location or whether to continue to utilize the old dormitories and make repairs on an as-needed basis.

## **1.5 Regulatory Requirements, Permits, and Approvals**

### **1.5.1 Regulatory Requirements**

This EA has been prepared in order to comply with NEPA and the Council on Environmental Quality (CEQ) regulations implementing NEPA. This document is intended to fulfill the requirements for compliance with Title 40 Code of Federal Regulations (CFR) Parts 1500-1508 and Air Force Instruction (AFI) 32-7061, *The Environmental Impact Analysis Process*.

### **1.5.2 Permits and Approvals**

The contractor performing the work is responsible for obtaining the relevant permits and accomplishing any required notification. Environmental permitting requirements for all work on Base are coordinated through Environmental Management. The following permits would be required. However, as permitting requirements change, others may be required.

- a. Air quality operational permits are required for internal combustion engines (ICEs) over 50 brake horsepower (bhp) rating (e.g., welders, generators, compressors, etc.). Any ICEs operated on Edwards AFB will require a permit from the local air agency. If such equipment is to remain on Base less than 45 calendar days, then a written exemption must be obtained from the local air agency.
- b. Boilers rated at 5-million British thermal unit (Btu) input or greater require an air permit from the KCAPCD.



- c. Most bird species and their active nests are protected under the MBTA, as amended. Depredation permits from the United States Fish and Wildlife Service (USFWS) are required for civilians and Air Force (AF) contractors to disturb nesting migratory birds.
- d. An Air Force Form 103, *Base Civil Engineering Work Clearance Request* (digging permit), is required for any trenching or digging operations that extend 4 or more inches below the ground surface.

## **1.6 Related Environmental Documents**

A number of related environmental documents have been prepared and approved that address activities related to the construction of the dormitories. These documents contain information used in the preparation of this EA. A listing of these documents follows:

- a. *Edwards Air Force Base General Plan* (AFFTC 2001).
- b. *Abbreviated Environmental Assessment for the Construction and Demolition of Dormitories and Construction of Airman's Drive, Edwards Air Force Base, California* (AFFTC 1995).
- c. *Programmatic Environmental Assessment for Demolition and Disposal of Base Buildings and Facilities on Edwards Air Force Base, California* (AFFTC 1997b).

## **2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES**

This chapter describes Alternative A – South Muroc Site, Alternative B – Split Popson Site, Alternative C – Airmen’s Drive Site, Alternative D – Airmen’s Drive/Rosamond Boulevard Site, and the No Action Alternative. In addition, it includes a brief discussion of the alternatives considered but eliminated from further study, and a comparative analysis of the impacts of the alternatives.

### **2.1 Alternative A – Proposed Action/South Muroc Site**

Under Alternative A, 128 new personnel dormitory units would be constructed approximately 200 feet east of the Phase I Dormitory Complex (Figure 3). These new units would be similar in style and size to those units constructed during Phase I. These new dormitories would include interior partitions, bathroom modules, laundries, storage, and lounge areas (Department of Defense [DOD] Form 1391). Site improvements would include parking areas, site access roads, sidewalks, appropriate drainages and lighting, and recreational areas. For a detailed description of the proposed dormitory complex see the *Dormitory Concepts Study, Edwards AFB, California* (GRW 1994).

Subsequent to the construction of these dormitory facilities, four old existing dormitories (Buildings 2410, 2411, 2413, and 2418) would be demolished. The demolition of these buildings was addressed in the *Programmatic Environmental Assessment for Demolition and Disposal of Base Buildings and Facilities on Edwards Air Force Base, California* (AFFTC 1997b).

### **2.2 Alternative B – Split Popson Avenue Site**

Under this alternative, half of the Phase II Dormitory Complex would be built south of Popson Avenue and the remaining half would be built north of Popson Avenue (Figure 4). All construction activities, facilities, and improvements associated with this alternative would be the same as those under Alternative A.

However, Buildings 2410 and 2411 are located on the north side of Popson Avenue where the proposed dormitories would be located. These buildings would have to be demolished prior to the start of construction activities. This would require alternate housing arrangements to be made for the unaccompanied, enlisted personnel in these facilities during the time of construction.

### **2.3 Alternative C – Airmen’s Drive Site**

Under this alternative, Phase II of the Dormitory Complex would be constructed west of Airmen’s Drive and south of the existing gym facilities (Figure 5). All construction activities, facilities, and improvements associated with this alternative would be the same as those under Alternative A. Demolition of the old dormitories (Buildings 2410, 2411, 2413, and 2418) would occur after construction of the new dormitories is completed.

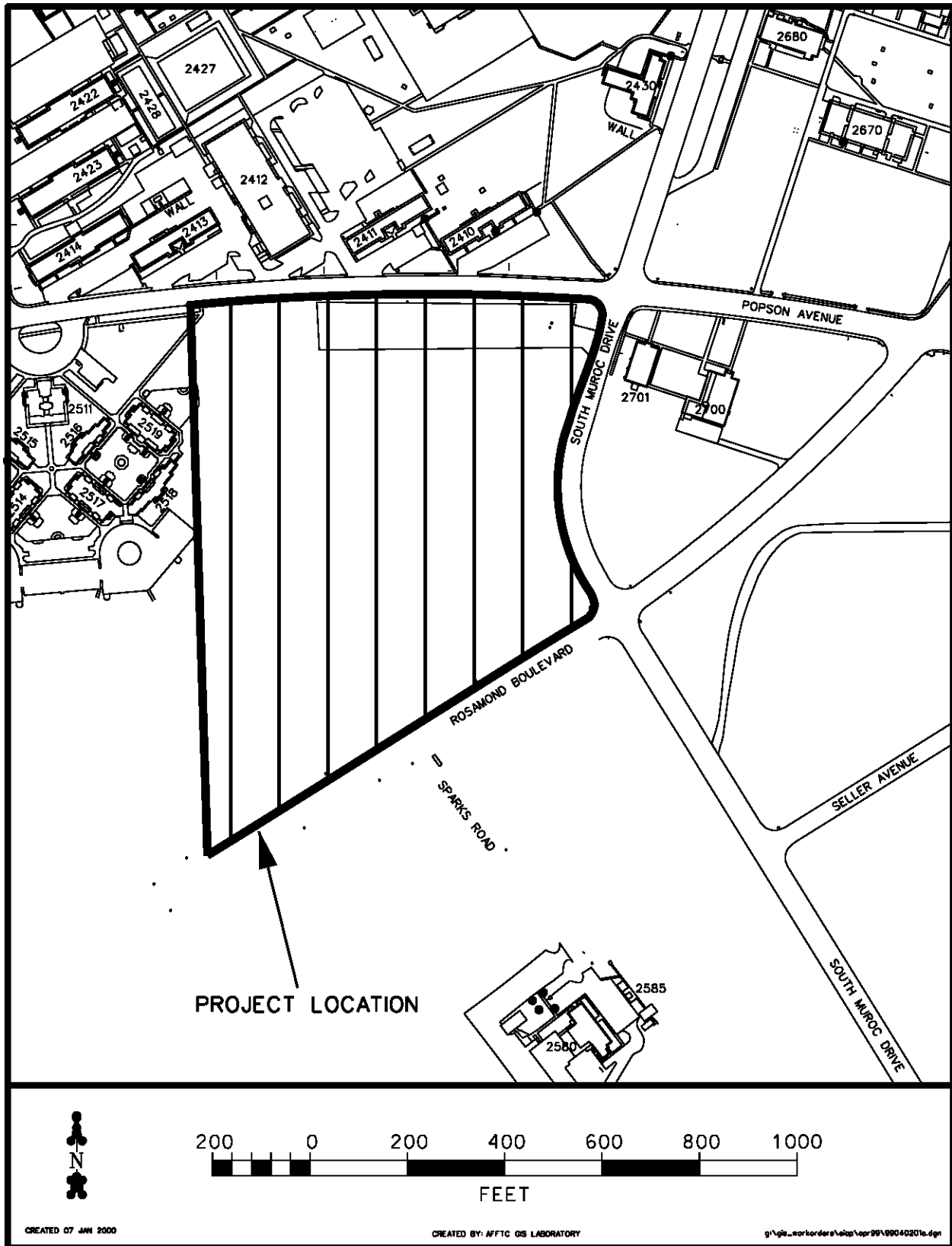
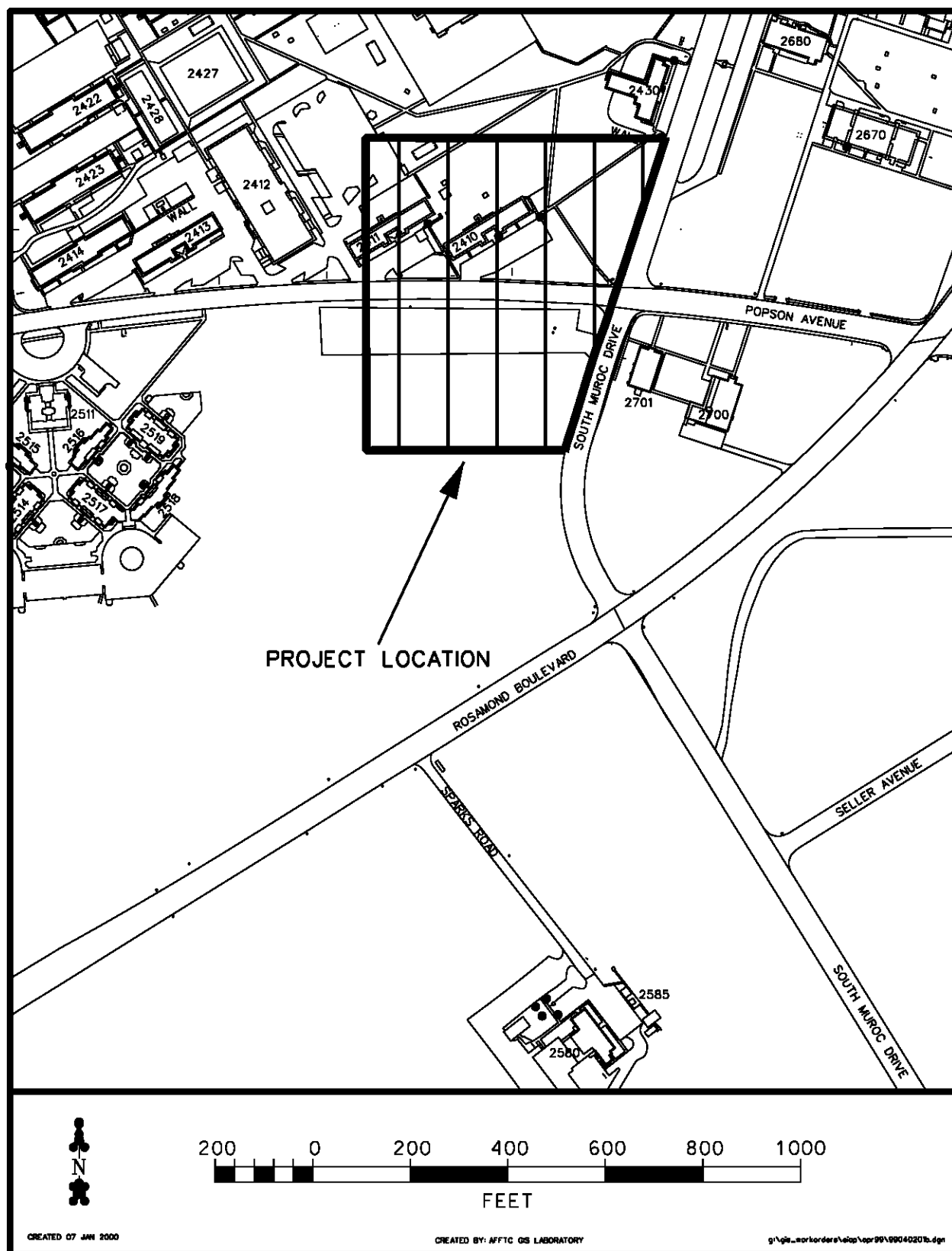


Figure 3 Alternative A Location Map



### Figure 4 Alternative B Location Map

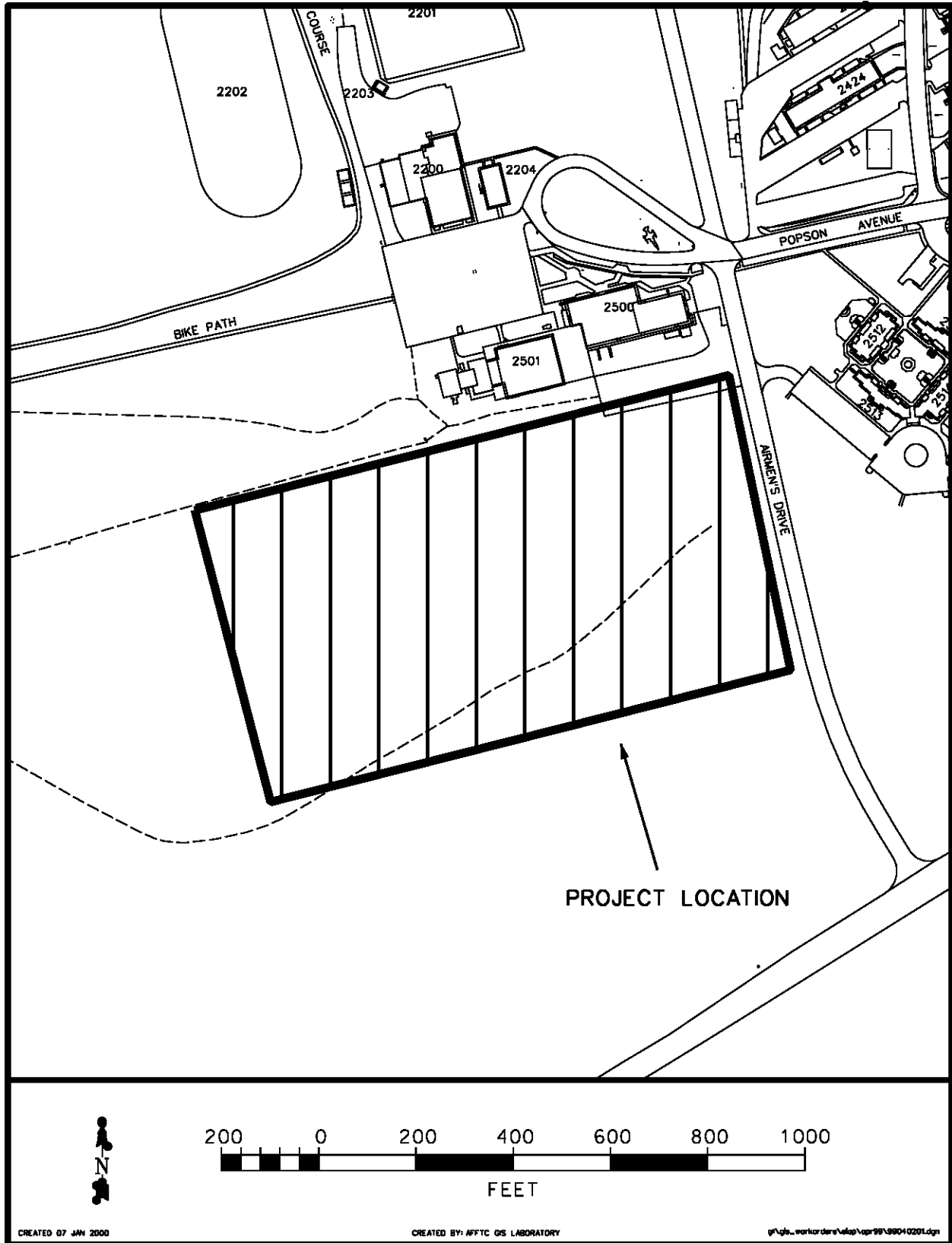


Figure 5 Alternative C Location Map

## 2.4 Alternative D – Airmen’s Drive/Rosamond Boulevard Site

Under this alternative, Phase II of the Dormitory Complex would be constructed south of the existing dormitories, east of Airmen’s Drive, and north of Rosamond Boulevard (Figure 6). All construction activities, facilities, and improvements associated with this alternative would be the same as those under Alternative A. Demolition of the old dormitories (Buildings 2410, 2411, 2413, 2418) would occur after construction of the new dormitories is completed.

## 2.5 Alternative E – No Action Alternative

Under this alternative, no new dormitories would be constructed. Unaccompanied enlisted personnel would continue to live in the old dormitories (Buildings 2410, 2411, 2413, and 2418) and repairs to these facilities would be done on an as-needed basis.

## 2.6 Criteria for Selection of a Reasonable Range of Alternatives

The criteria identified in this section establish a minimum set of requirements that must be met in order for an alternative to be considered viable. Those not meeting one or more of the selection criteria are eliminated from further discussion. The reason(s) why each was eliminated is/are documented in Section 2.7. Alternatives meeting all selection criteria are retained and each is fully analyzed in Section 4.0 (Environmental Consequences) of this EA.

The criteria used to select the alternatives discussed in this document are described on the following page. These criteria address the need for new dormitories.

- a. Technical/Operational
  - 1) Comply with Military Handbook 1190, Part II, *Facility Planning and Design Guide*.
  - 2) Comply with *Design Standards of the Edwards Air Force Base Comprehensive Plan* (AFFTC 1997a).
  - 3) Comply with Air Force Handbook 32-1084, *Facility Requirements*.
  - 4) Locate the dormitories in a centrally located, functional activity area.
- b. Environmental
  - 1) Eliminate potential for personnel to be exposed to facility hazards (e.g., ACMs, LBPs, PCBs, etc).
- c. Economic
  - 1) Use the most cost-effective means of providing modern, updated dormitory facilities.

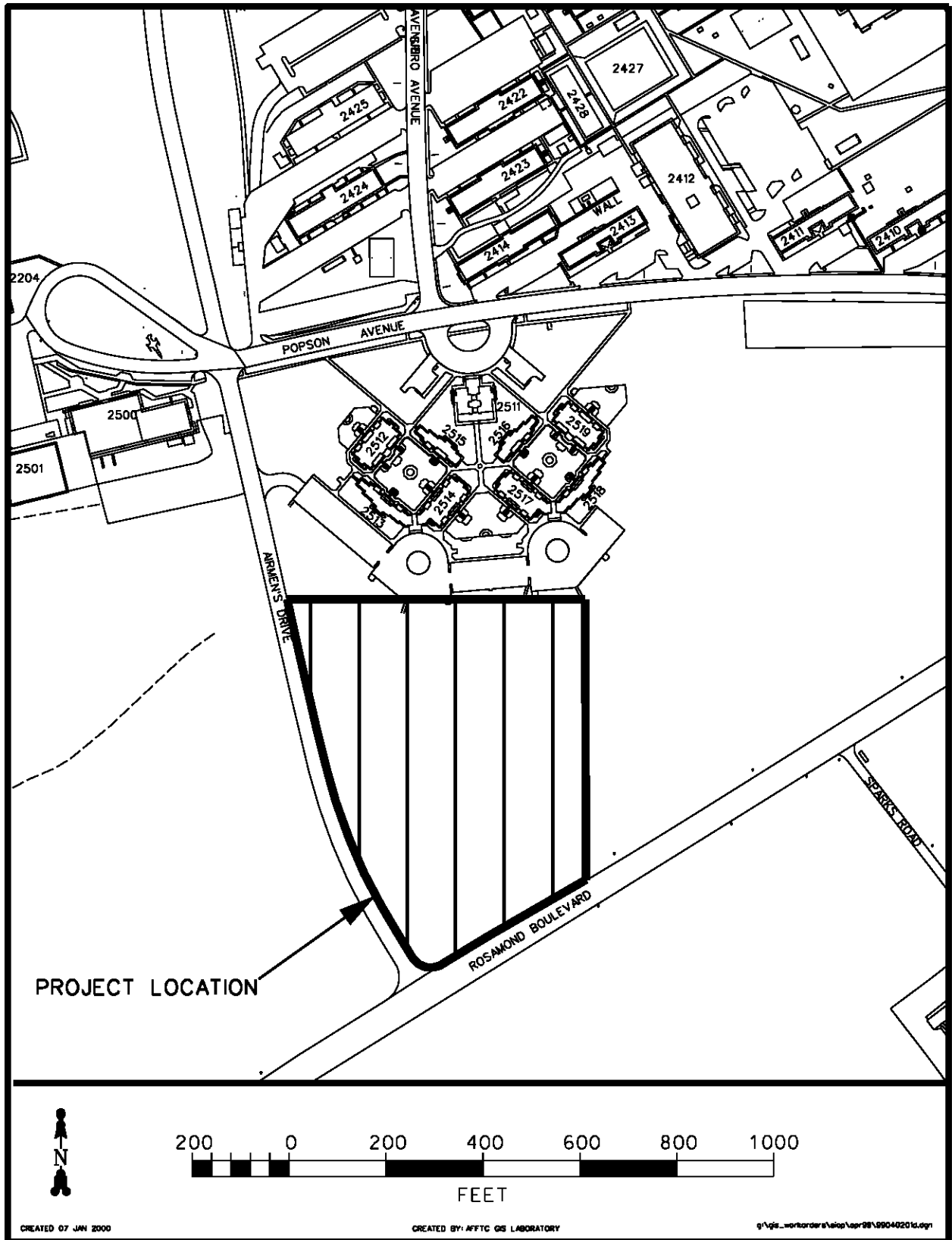


Figure 6 Alternative D Location Map

## **2.7 Alternatives Considered But Dismissed From Further Consideration**

There were no siting location alternatives that were considered and dismissed. All siting locations identified have been examined throughout this document.

## **2.8 Comparison Summary of Alternatives**

Table 1 provides a comparison summary of the project description, location, and size for Alternatives A, B, C, D, and the No Action Alternative. Table 2 provides a comparison of the environmental impacts anticipated as a result of implementing all alternatives, including the No Action Alternative.



**TABLE 1**  
**COMPARISON OF ALTERNATIVES**

	<b>ALTERNATIVE A</b>	<b>ALTERNATIVE B</b>	<b>ALTERNATIVE C</b>	<b>ALTERNATIVE D</b>	<b>ALTERNATIVE E</b>
<b>Title</b>	Proposed Action/ South Muroc Site	Split Popson Avenue Site	Airmen's Drive Site	Airmen's Drive/ Rosamond Boulevard Site	No Action Alternative
<b>Location</b>	The project would be located approximately 200 feet east of the Phase I Dormitory Complex. All construction activities would take place south of Popson Avenue.	Under this alternative, half of the Phase II Dormitory Complex would be constructed south of Popson Avenue and the remaining half would be constructed north of Popson Avenue, along South Muroc Drive.	Under this alternative, Phase II of the Dormitory Complex would be constructed on the west side of Airmen's Drive, south of the Base gym.	Under this alternative, Phase II of the Dormitory Complex would be constructed south of the Phase I complex, along Airmen's Drive and Rosamond Boulevard.	None.
<b>Size</b>	Construction of 128-personnel dormitory units and the demolition of 4 existing dormitories.	Same as Alternative A.	Same as Alternative A.	Same as Alternative A.	None.

**TABLE 2**  
**SUMMARY OF THE POTENTIAL ENVIRONMENTAL IMPACTS**

ENVIRONMENTAL ISSUE	ALTERNATIVE A Proposed Action/ South Muroc Site	ALTERNATIVE B Split Popson Avenue Site	ALTERNATIVE C Airmen's Drive Site	ALTERNATIVE D Airmen's Drive/ Rosamond Boulevard Site	ALTERNATIVE E No Action Alternative
<b>LAND USE</b> <ul style="list-style-type: none"> <li>Compatible with the <i>Base General Plan</i> and Edwards AFB Design Standards</li> <li>Number and types of noise sensitive receptors</li> </ul>	<p>Yes</p> <p><u>Minimization:</u> Compliance with the standards in these documents would ensure no impacts.</p> <p>Proposed site is adjacent to the existing dormitories and the Base Chapel.</p> <p><u>Minimization:</u> Compliance with listed measures would help to reduce impacts to these noise sensitive receptors.</p>	<p>Yes</p> <p><u>Minimization:</u> Same as Alternative A.</p> <p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p>	<p>Yes</p> <p><u>Minimization:</u> Same as Alternative A.</p> <p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p>	<p>Yes</p> <p><u>Minimization:</u> Same as Alternative A.</p> <p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p>	<p>No change</p> <p><u>Minimization:</u> No minimization measures are required or recommended.</p> <p>No impacts to sensitive noise receptors are anticipated under this alternative.</p> <p><u>Minimization:</u> No minimization measures are required or recommended.</p>
<b>AIR QUALITY</b> <ul style="list-style-type: none"> <li>Tons and type of pollutants generated</li> </ul>	<p>5.37 tons of VOC and 16.68 tons of NO<sub>x</sub>. HAPs would also be generated during dormitory construction and operation.</p> <p>Fugitive dust emissions would be generated by construction and demolition activities.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p>	<p>No change to the existing environment is anticipated.</p>

Notes: 1. AFB – Air Force Base  
3. NO<sub>x</sub> – oxides of nitrogen

2. VOC – volatile organic compounds  
4. HAPs – hazardous air pollutants

**TABLE 2 (Continued)**  
**SUMMARY OF THE POTENTIAL ENVIRONMENTAL IMPACTS**

ENVIRONMENTAL ISSUE	ALTERNATIVE A Proposed Action/ South Muroc Site	ALTERNATIVE B Split Popson Avenue Site	ALTERNATIVE C Airmen's Drive Site	ALTERNATIVE D Airmen's Drive/ Rosamond Boulevard Site	ALTERNATIVE E No Action Alternative
<b>AIR QUALITY (Concluded)</b>	<u>Minimization:</u> Impacts would be minimized through compliance with all applicable rules and regulations including AFI 32-7040, KCAPCD Rule 210.1, and CAA, Title III HAP requirements.	<u>Minimization:</u> Same as Alternative A.	<u>Minimization:</u> Same as Alternative A.	<u>Minimization:</u> Same as Alternative A.	<u>Minimization:</u> No minimization measures are required or recommended.
• Regionally Significant	No	No	No	No	No
	<u>Minimization:</u> No minimization measures are required or recommended.	<u>Minimization:</u> No minimization measures are required or recommended.	<u>Minimization:</u> No minimization measures are required or recommended.	<u>Minimization:</u> No minimization measures are required or recommended.	<u>Minimization:</u> No minimization measures are required or recommended.
• Permits Required	Air quality permits may be required from the KCAPCD.	Anticipated impacts are the same as those under Alternative A.	Anticipated impacts are the same as those under Alternative A.	Anticipated impacts are the same as those under Alternative A.	No change from the existing environment.
	<u>Minimization:</u> No minimization measures are required or recommended.	<u>Minimization:</u> No minimization measures are required or recommended.	<u>Minimization:</u> No minimization measures are required or recommended.	<u>Minimization:</u> No minimization measures are required or recommended.	<u>Minimization:</u> No minimization measures are required or recommended.
<b>WATER RESOURCES</b>					
• Quality of Stormwater	Surface runoff would affect the quality of stormwater during construction activities.	Anticipated impacts are the same as those under Alternative A.	Anticipated impacts are the same as those under Alternative A.	Anticipated impacts are the same as those under Alternative A.	No change from the existing environment.

Notes: 1. AFI – Air Force Instruction  
3. CAA – *Clean Air Act*

2. KCAPCD – Kern County Air Pollution Control District  
4. HAP – hazardous air pollutant

**TABLE 2(Continued)**  
**SUMMARY OF THE POTENTIAL ENVIRONMENTAL IMPACTS**

ENVIRONMENTAL ISSUE	ALTERNATIVE A Proposed Action/ South Muroc Site	ALTERNATIVE B Split Popson Avenue Site	ALTERNATIVE C Airmen's Drive Site	ALTERNATIVE D Airmen's Drive/ Rosamond Boulevard Site	ALTERNATIVE E No Action Alternative
<b>WATER RESOURCES (Concluded)</b>	<u>Minimization:</u> The SWPPP shall be followed during construction activities.	<u>Minimization:</u> Same as Alternative A.	<u>Minimization:</u> Same as Alternative A.	<u>Minimization:</u> Same as Alternative A.	<u>Minimization:</u> No minimization measures are required or recommended.
<b>SAFETY AND OCCUPATIONAL HEALTH</b> <ul style="list-style-type: none"> <li>Potential Exposure to asbestos, heavy-metal based paint, and PCBs</li> </ul>	<p>Project personnel have the potential to be exposed to asbestos, heavy-metal based paint, and PCBs during demolition of the existing dormitories. A long-term, positive impact would occur as a result of housing enlisted personnel in dormitories that are free of these materials.</p> <p><u>Minimization:</u> Compliance with all applicable regulations and the minimization measures listed in Section 4.3.2 during construction and demolition activities.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p>	<p>No change from the existing environment.</p> <p><u>Minimization:</u> No minimization measures are required or recommended.</p>

Notes: 1. PCB – polychlorinated biphenyls

2. SWPPP – Stormwater Pollution Prevention Plan

**TABLE 2 (Continued)**  
**SUMMARY OF THE POTENTIAL ENVIRONMENTAL IMPACTS**

ENVIRONMENTAL ISSUE	ALTERNATIVE A Proposed Action/ South Muroc Site	ALTERNATIVE B Split Popson Avenue Site	ALTERNATIVE C Airmen's Drive Site	ALTERNATIVE D Airmen's Drive/ Rosamond Boulevard Site	ALTERNATIVE E No Action Alternative
<b>HAZARDOUS MATERIALS AND WASTE</b>	<ul style="list-style-type: none"> <li>Type and amount of hazardous material used</li> </ul>	<p>The amount and type of hazardous materials required would be similar to those already used on Edwards AFB.</p> <p><u>Minimization:</u> The contractor must comply with all applicable Federal, State, and local laws and regulations.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p>	<p>No change from the existing environment.</p> <p><u>Minimization:</u> No minimization measures are required or recommended.</p>
	<ul style="list-style-type: none"> <li>Type and amount of hazardous waste generated</li> </ul>	<p>The amount and type of hazardous wastes generated would be similar to those already generated on Edwards AFB.</p> <p><u>Minimization:</u> The contractor must comply with all applicable Federal, State, and local laws and regulations.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p>	<p>No change from the existing environment.</p> <p><u>Minimization:</u> No minimization measures are required or recommended.</p>

Note: 1. AFB – Air Force Base

**TABLE 2 (Continued)**  
**SUMMARY OF THE POTENTIAL ENVIRONMENTAL IMPACTS**

ENVIRONMENTAL ISSUE	ALTERNATIVE A Proposed Action/ South Muroc Site	ALTERNATIVE B Split Popson Avenue Site	ALTERNATIVE C Airmen's Drive Site	ALTERNATIVE D Airmen's Drive/ Rosamond Boulevard Site	ALTERNATIVE E No Action Alternative
<b>HAZARDOUS MATERIALS AND WASTE (Concluded)</b> <ul style="list-style-type: none"> <li>Amount of solid waste generated</li> </ul>	<p>A large quantity of solid waste will be generated.</p> <p><u>Minimization:</u> Dispose of in an approved off-Base landfill.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p>	<p>No change from the existing environment.</p> <p><u>Minimization:</u> No minimization measures are required.</p>
<b>BIOLOGICAL RESOURCES</b> <ul style="list-style-type: none"> <li>Area of vegetation removal</li> <li>Potential harm to desert tortoise</li> </ul>	<p>Approximately 11 acres</p> <p><u>Minimization:</u> Proponent/contractor must follow the terms and conditions of the appropriate biological opinion.</p> <p>Proposed project activities could potentially result in injury or the loss of habitat/burrows.</p> <p><u>Minimization:</u> Proponent/contractor must follow the terms and conditions of the appropriate biological opinion.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p> <p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p> <p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p> <p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p>	<p>No change from the existing environment.</p> <p><u>Minimization:</u> No minimization measures are required or recommended.</p> <p>No change from the existing environment</p> <p><u>Minimization:</u> No minimization measures are required or recommended.</p>

**TABLE 2 (Continued)**  
**SUMMARY OF THE POTENTIAL ENVIRONMENTAL IMPACTS**

ENVIRONMENTAL ISSUE	ALTERNATIVE A Proposed Action/ South Muroc Site	ALTERNATIVE B Split Popson Avenue Site	ALTERNATIVE C Airmen's Drive Site	ALTERNATIVE D Airmen's Drive/ Rosamond Boulevard Site	ALTERNATIVE E No Action Alternative
<b>BIOLOGICAL RESOURCES (Concluded)</b> <ul style="list-style-type: none"> <li>Compliance with the <i>Migratory Bird Treaty Act</i></li> </ul>	Demolition of Buildings 2410, 2411, 2413, and 2418 would potentially impact nesting birds.  <u>Minimization:</u> Coordinate with Environmental Management when construction and demolition begin.	Anticipated impacts are the same as those under Alternative A.  <u>Minimization:</u> Same as Alternative A.	Anticipated impacts are the same as those under Alternative A.  <u>Minimization:</u> Same as Alternative A.	Anticipated impacts are the same as those under Alternative A.  <u>Minimization:</u> Same as Alternative A.	No change from the existing environment.  <u>Minimization:</u> No minimization measures are required or recommended.
<b>GEOLOGY AND SOILS</b> <ul style="list-style-type: none"> <li>Area of vegetation removal</li> <li>Quantity of fill material required</li> </ul>	Approximately 11 acres of vegetation would be removed. <u>Minimization:</u> Duration that soils are left unprotected would be minimized and periodically sprayed with water.  A large quantity of fill material will be required. <u>Minimization:</u> Fill material shall be obtained from an existing, approved on-Base or State-licensed off-Base borrow area.	Anticipated impacts are the same as those under Alternative A. <u>Minimization:</u> Same as Alternative A.  Anticipated impacts are the same as those under Alternative A. <u>Minimization:</u> Same as Alternative A.	Anticipated impacts are the same as those under Alternative A. <u>Minimization:</u> Same as Alternative A.  Anticipated impacts are the same as those under Alternative A. <u>Minimization:</u> Same as Alternative A.	Anticipated impacts are the same as those under Alternative A. <u>Minimization:</u> Same as Alternative A.  Anticipated impacts are the same as those under Alternative A. <u>Minimization:</u> Same as Alternative A.	No change from the existing environment. <u>Minimization:</u> No minimization measures are required or recommended.  No change from the existing environment. <u>Minimization:</u> No minimization measures are required or recommended.

**TABLE 2 (Continued)**  
**SUMMARY OF THE POTENTIAL ENVIRONMENTAL IMPACTS**

ENVIRONMENTAL ISSUE	ALTERNATIVE A Proposed Action/ South Muroc Site	ALTERNATIVE B Split Popson Avenue Site	ALTERNATIVE C Airmen's Drive Site	ALTERNATIVE D Airmen's Drive/ Rosamond Boulevard Site	ALTERNATIVE E No Action Alternative
<b>SOCIOECONOMICS</b>					
<ul style="list-style-type: none"> <li>Generation of revenue into the local economy</li> </ul>	<p>The proposed project would provide an incremental increase in revenues generated in the local economy.</p> <p><u>Minimization:</u> No minimization measures are required or recommended.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p>	<p>No change from the existing environment.</p> <p><u>Minimization:</u> Same as Alternative A.</p>
<ul style="list-style-type: none"> <li><i>Stewart McKinney Homeless Assistance Act</i></li> </ul>	<p>The remote location of Edwards AFB precludes the feasibility of utilizing the dormitories for homeless housing.</p> <p><u>Minimization:</u> No minimization measures are required or recommended.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p>	<p>No change from the existing environment.</p> <p><u>Minimization:</u> Same as Alternative A.</p>
<b>INFRASTRUCTURE</b>					
<ul style="list-style-type: none"> <li>Disruption or damage to utility systems</li> </ul>	<p>Damage to existing utility lines within the project area may occur through accidental severance and would result in the interruption of service.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p>	<p>No change from the existing environment.</p>



**TABLE 2 (Continued)**  
**SUMMARY OF THE POTENTIAL ENVIRONMENTAL IMPACTS**

ENVIRONMENTAL ISSUE	ALTERNATIVE A Proposed Action/ South Muroc Site	ALTERNATIVE B Split Popson Avenue Site	ALTERNATIVE C Airmen's Drive Site	ALTERNATIVE D Airmen's Drive/ Rosamond Boulevard Site	ALTERNATIVE E No Action Alternative
<b>INFRASTRUCTURE (Concluded)</b> <ul style="list-style-type: none"> <li>Temporary closure of roadways or rerouting of traffic</li> </ul>	<p><u>Minimization:</u> Coordinate AF Form 103 through the Base Civil Engineer Infrastructure Controller.</p> <p>Any required road closure or rerouting of traffic would be expected to be temporary.</p> <p><u>Minimization:</u> All work affecting closure, rerouting, or other modification of roadways or streets shall be coordinated with Security Forces (95 SFS/SFOL), the Fire Department (95 CEG/CEF) and Public Affairs (AFFTC/PA).</p>	<p><u>Minimization:</u> Same as Alternative A.</p> <p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p>	<p><u>Minimization:</u> Same as Alternative A.</p> <p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p>	<p><u>Minimization:</u> Same as Alternative A.</p> <p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> Same as Alternative A.</p>	<p><u>Minimization:</u> No minimization measures are required or recommended.</p> <p>No change from the existing environment.</p> <p><u>Minimization:</u> No minimization measures are required or recommended.</p>

**TABLE 2 (Concluded)**  
**SUMMARY OF THE POTENTIAL ENVIRONMENTAL IMPACTS**

ENVIRONMENTAL ISSUE	ALTERNATIVE A Proposed Action/ South Muroc Site	ALTERNATIVE B Split Popson Avenue Site	ALTERNATIVE C Airmen's Drive Site	ALTERNATIVE D Airmen's Drive/ Rosamond Boulevard Site	ALTERNATIVE E No Action Alternative
<b>ENVIRONMENTAL JUSTICE AND PROTECTION OF CHILDREN</b> <ul style="list-style-type: none"> <li>Impacts to minorities</li> </ul>	<p>Project activities would not in itself create any advantage or disadvantage for any group or individual.</p> <p><u>Minimization:</u> No minimization measures are required or recommended.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> No minimization measures are required or recommended.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> No minimization measures are required or recommended.</p>	<p>Anticipated impacts are the same as those under Alternative A.</p> <p><u>Minimization:</u> No minimization measures are required or recommended.</p>	<p>No change from the existing environment.</p> <p><u>Minimization:</u> No minimization measures are required or recommended.</p>

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### **3.0 AFFECTED ENVIRONMENT**

This section describes the relevant resources at Edwards AFB that may impact or may be impacted by any of the action alternatives if they were implemented. This section establishes the baseline against which the decision maker and the public can compare the effects of all action alternatives. The following environmental attributes comprise the existing environment: Land Use, Air Quality, Safety and Occupational Health, Hazardous Materials and Waste, Biological Resources, Geology and Soils, Socioeconomic, and Infrastructure. These elements are described below.

#### **3.1 Land Use**

Land may be used for a variety of uses including residential, industrial, commercial, agricultural, recreational, and military. Specialized land uses may include radio transmission areas, bombing/missile ranges, wildlife preserves, explosive ordnance ranges, and airfields. The *Edwards Air Force Base General Plan* (AFFTC 2001) presents the official position on long-range development at Edwards AFB. This Plan establishes the goals, policies, plans, and anticipated actions regarding the physical, social, and economic environment.

##### **3.1.1 Regulatory Requirements/Guidance**

Air Force Instruction 32-7062, *Air Force Comprehensive Planning*, contains the responsibilities and requirements for comprehensive planning and describes the procedures for developing, implementing, and maintaining the General Plan within the Installation Comprehensive Plan.

Air Force Instruction 32-7063, *Air Installation Compatible Use Zone Program*, identifies the requirements to develop, implement, and maintain the Air Force Installation Compatible Use Zone (AICUZ) program. It applies to all Air Force installations with active runways located in the United States and its territories, including government-owned, contractor-operated facilities.

##### **3.1.2 On-Base Land Use**

Edwards AFB consists of approximately 301,000 acres in Kern, Los Angeles, and San Bernardino counties. The Base contains largely undeveloped or semi-improved land that is used to support the flight testing of a wide variety of military, civilian, and experimental aircraft. The developed portion of the Base includes approximately 6 percent of the total Base area, and is concentrated on the west side of Rogers Dry Lake. The developed areas include Main Base, South Base, North Base, and the Air Force Research Laboratory (AFRL). The Base General Plan establishes land use designations for the Base.

###### **3.1.2.1 Architectural Compatibility**

The *Design Standards of the Edwards Air Force Base Comprehensive Plan* (AFFTC 1997a) have been prepared and adopted as part of the *Edwards Air Force Base General Plan* in order to:

- a. Ensure consistency in the construction and design of buildings, their interiors, and infrastructure systems throughout Edwards AFB and

- b. Create a common level of understanding on how to design future projects at Edwards AFB (AFFTC 1997a).

The Design Standards deal with all aspects of facility development, from new construction and design, to additions and remodeling. For new construction, the general approach taken in the Standards targets development of modernized facilities, which incorporate solar control features such as deep overhangs, recessed windows, and protected entrances and exits. The recommended scale is generally low, with a marble crème color and redwood-colored, low-hip roofs. Composite building panels in a marble crème color are acceptable for building wall construction; redwood is the preferred accent color. This approach is characterized as a modern Southwest style with features softer than the flat roof box look of the traditional Southwest style.

### 3.1.3 Noise (Annoyance)

The primary noise sources at Edwards AFB are subsonic and supersonic aircraft operations. Secondary sources include surface traffic, rail service operations, engine runups and other tests, and equipment required for ground facility operations. Ambient noise levels in the developed portions of the Base are identified in Table 3. Existing noise contours at Edwards AFB are based on flightline operations and can be seen in Figure 7.

**TABLE 3**  
**AMBIENT (BACKGROUND) NOISE LEVELS RECORDED AT VARIOUS BASE LOCATIONS**

Location	L <sub>dn</sub>
Edwards AFB Housing Area and Vicinity	
* Back of Community Health Clinic	67.7
* Unpaved Parking Area Near Schools	36.9
* Northeast of the Hospital Dormitory	61.7
* Intersection of Forbes Avenue and Yeager Boulevard	61.5
* Chapel	53.6
* Golf Course	54.3
Main Base	
* Building 1200 (Base Operations/Base Exchange Cafeteria)	68.8
* Building 1632 (Aircraft Research Engineering Maintenance Facility)	75.6
North Base	
* Near JPL Building 4231 (Satellite Communications Ground Terminal)	60.6
* Near Taxiway Runway Intersection	57.2
* At Building 4444 (Research Equipment Storage)	65.0
South Base	
* B-2 Area	67.9
* Main Runway (Southeast of)	72.4
* Inactive Runway	60.8
Air Force Research Laboratory	
* Near Building 8255 (Equipment Research Engineering)	54.7
* Near Building 8483 (Missile in Space Research Support)	46.1
NASA/Dryden Flight Research Center	
* Near Building 4850 (NASA Child Development Center)	65.5

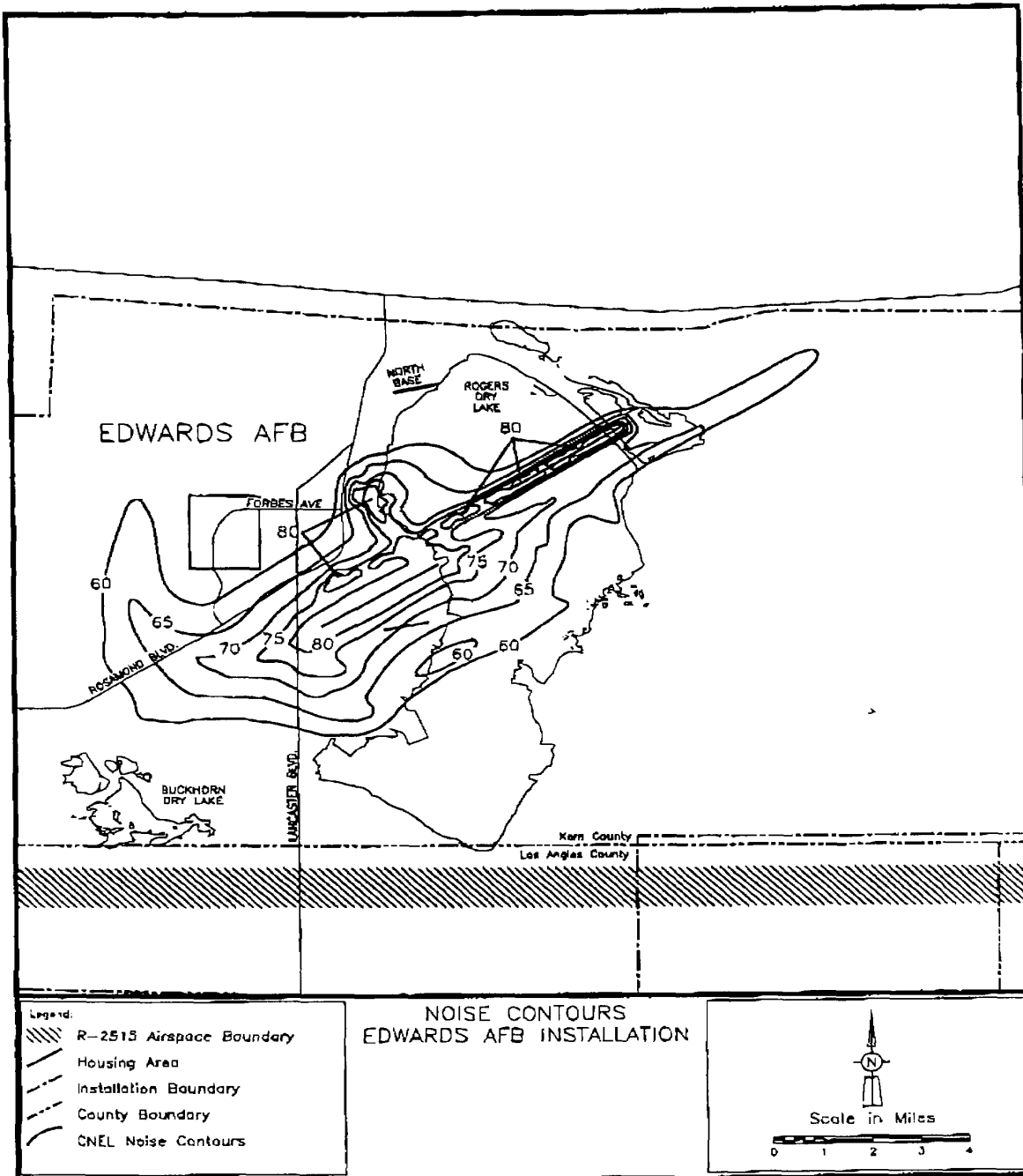
Source: *Programmatic Environmental Assessment for the Comprehensive Plan of Edwards Air Force Base, California* (USACOE and AFFTC 1994)

Notes: 1. AFB – Air Force Base

2. JPL – Jet Propulsion Laboratory

3. NASA – National Aeronautics and Space Administration

4. L<sub>dn</sub> – the day/night equivalent noise level. It incorporates a 10-decibel penalty for nighttime noise between 10 pm and 7 am to reflect the added likelihood of annoyance during this period.



Source: AFFTC 1998b

Figure 7 Noise Contour Map

Noise sensitive receptors at Edwards AFB include military family housing, dormitories, Community Health Clinic, schools, child development center, recreation areas, and the golf course. The proposed action and alternatives are located adjacent to Phase I of the Dormitory Complex.

### **3.2 Air Quality**

Air quality in a given location is described by the concentration of various pollutants in the atmosphere. The type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing weather conditions determine air quality. The significance of the pollutant concentration is determined by comparing it to the Federal and State ambient air quality standards. These standards represent the maximum allowable atmospheric concentrations that may occur while ensuring protection of public health and welfare, with a reasonable margin of safety.

#### **3.2.1 Regulatory Requirements/Guidance**

The 1970 Federal *Clean Air Act* (CAA) (42 USC 7401-7671), and the 1990 *Clean Air Act Amendments* (CAAA) (42 USC 7401-7671), regulate air pollution emissions from stationary and mobile sources to protect public health and welfare. Air quality regulations were first promulgated with the CAA and revised with the CAAA. Stationary sources at Edwards AFB typically include fixed sources such as internal combustion engine generators, external combustion boilers, and spray paint booths. Mobile sources typically include motor vehicles, construction equipment, and aircraft.

##### **3.2.1.1 National Ambient Air Quality Standards**

The CAA and CAAA established the National Ambient Air Quality Standards (NAAQS) for the regulation of criteria pollutants. Criteria pollutants are chemical compounds that are known to have serious public health impacts, as well as cause damage to the environment in general. Designated State and local agencies have primary authority and responsibility to implement rules and regulations to control sources of criteria pollutants. Within the State of California, the authority to regulate sources of air emissions resides with the California Air Resources Board (CARB) and is delegated to local air pollution control and air quality management districts. The criteria pollutants include ozone (O<sub>3</sub>), carbon monoxide (CO), oxides of nitrogen (NO<sub>x</sub>), sulfur oxides (SO<sub>x</sub>), and particulate matter equal to or less than 10 microns (PM<sub>10</sub>). In addition, volatile organic compounds (VOCs) and NO<sub>x</sub> pollutants are classified as O<sub>3</sub> precursors, and are subject to further regulations.

Based on measured ambient criteria pollutant data, the United States Environmental Protection Agency (U.S. EPA) designates all areas of the United States as having air quality better than (attainment) or worse than (nonattainment) the NAAQS. An area is often designated as unclassified when there are insufficient ambient criteria pollutant data for the U.S. EPA to form a basis for attainment status. Once an area is classified as nonattainment, the degree of nonattainment is divided into categories of *marginal*, *moderate*, *serious*, *severe*, or *extreme*. The assignment of a nonattainment category is based on measured criteria pollutant concentrations in a given location and varies according to the criteria pollutant of concern.

The measurement of existing ambient criteria pollutant concentrations is accomplished using air quality monitoring stations. The closest CARB air quality monitoring station to Edwards AFB is located in Mojave, California. The location of the Mojave Air Station and other CARB monitoring stations in the Edwards AFB area can be seen in Figure 8. Table 4 shows the 1996 and 1997 data received at the monitoring station for criteria pollutants as they relate to NAAQS. Table 4 also shows the number of times the criteria pollutants measured at the Mojave Air Station equaled or exceeded the NAAQS for a given year.

For the purposes of this EA, these data are provided as information only. It illustrates the current ambient air quality in the Edwards AFB area.

**TABLE 4**  
**AMBIENT AIR STANDARDS FOR CRITERIA POLLUTANTS**

<b>CRITERIA POLLUTANT</b>	<b>NATIONAL AMBIENT AIR QUALITY STANDARD (NAAQS)</b>	<b>NUMBER OF TIMES AND YEAR MOJAVE AIR STATION EQUAL TO OR EXCEEDING NAAQS</b>
Ozone	0.12 ppm (2) – hourly average	2 (1996) 0 (1997)
Particulate Matter <10 µm (1)	50 µg/m <sup>3</sup> (3) – annual average 150 µg/m <sup>3</sup> (3) – annual average	0 (1996) 0 (1997)
Oxides of Nitrogen	0.053 ppm – annual average	0 (1996) 0 (1997)

Notes: 1. µm –  $1 \times 10^{-6}$  meters  
2. ppm – parts per million  
3. µg/m<sup>3</sup> –  $1 \times 10^{-6}$  grams per cubic meter

States are required to develop a State Implementation Plan (SIP) that sets forth how the CAAA provisions will be implemented within the State. The SIP is the primary means for the implementation, maintenance, and enforcement of the measures needed to attain and maintain the NAAQS within each state. The purpose of the SIP is twofold. First, it must provide a control strategy that will result in the attainment and maintenance of the NAAQS. Second, it must demonstrate that progress is made in attaining the standards in each nonattainment area. The California O<sub>3</sub> SIP was approved by the U.S. EPA in September 1996 and codified as law in 40 CFR 52, Subpart F.

### **3.2.2 Local District Control**

Within the State of California, the authority to regulate sources of air emissions resides with the CARB and is delegated to local air pollution control and air quality management districts. Local districts enact rules and regulations to achieve SIP requirements. As shown in Figure 8, Edwards AFB is located within the jurisdiction of three local air districts: Kern County Air Pollution Control District (KCAPCD), Mojave Desert Air Quality Management District (MDAQMD), and Antelope Valley Air Pollution Control District (AVAPCD).



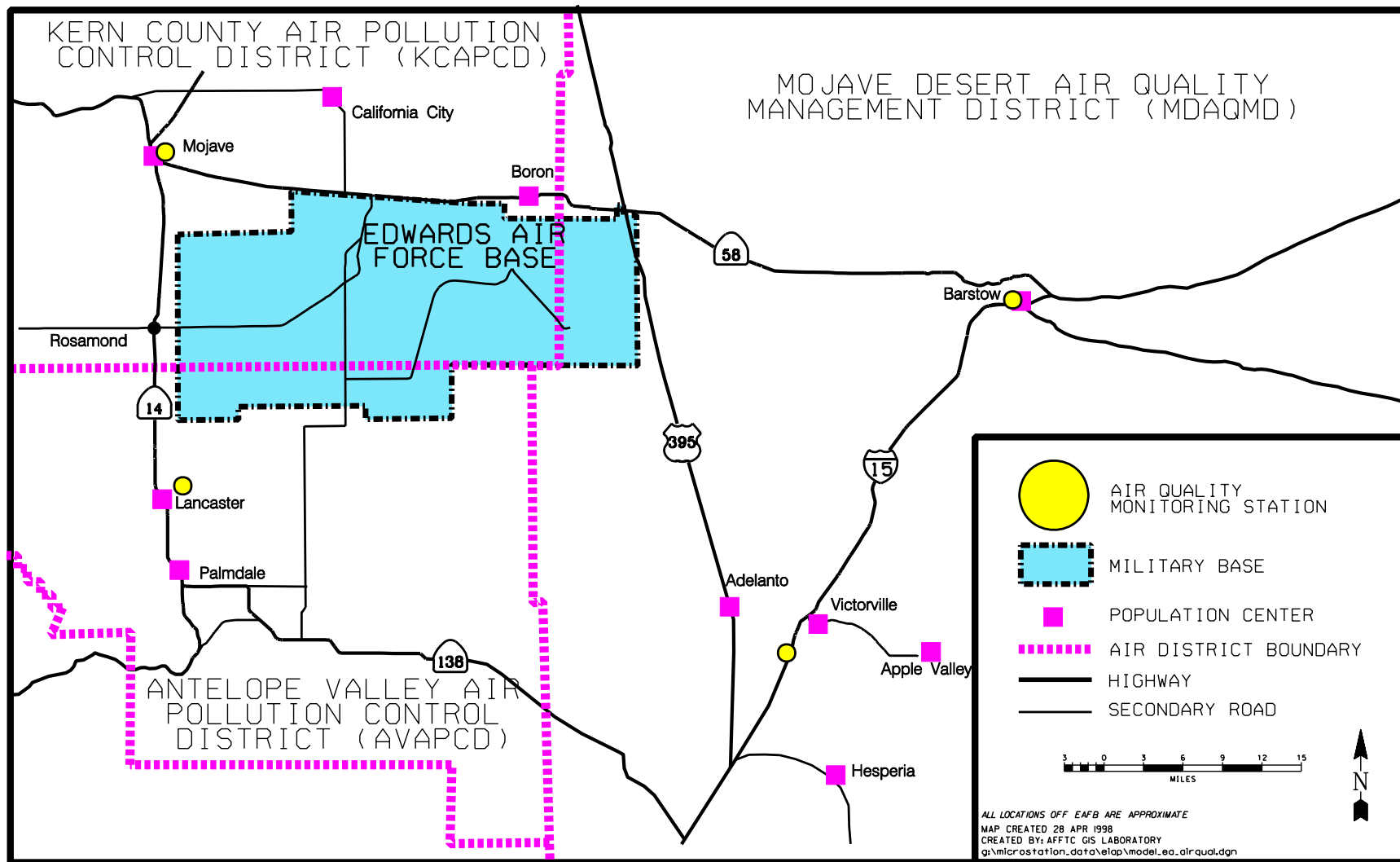


Figure 8 Air District Map

The nonattainment status of each of the three air districts is shown in Figure 9. The KCAPCD is designated as being in *serious* O<sub>3</sub> nonattainment and in attainment or unclassified for all other pollutants. The MDAQMD is designated as being *severe* O<sub>3</sub> nonattainment, *moderate* PM<sub>10</sub> nonattainment, and in attainment or unclassified for all other pollutants. The AVAPCD is designated as being *severe* O<sub>3</sub> nonattainment and in attainment or unclassified for all other pollutants.

For KCAPCD, New Source Review (NSR) is implemented under Rule 210.1, *New and Modified Stationary Source Review (NSR)*; for MDAQMD, NSR is implemented under Regulation XIII, *New Source Review*; and for AVAPCD, NSR is implemented under Regulation XIII, *New Source Review*. Specifically, these rules and regulations:

- a. Provide for the preconstruction review of new and modified stationary sources of affected air pollutants to ensure emissions will not interfere with the attainment of ambient air quality standards;
- b. Ensure appropriate new and modified sources of affected pollutants are constructed with the Best Available Control Technology (BACT); and
- c. Provide for no net increase in emissions from new and modified stationary sources for all nonattainment pollutants and their precursors.

In order to enforce these rules, the air districts have established baseline emission levels for new or modified stationary sources of PM<sub>10</sub>, SO<sub>x</sub>, NO<sub>x</sub>, and VOCs in nonattainment areas. Proposed projects that generate emissions in excess of these threshold levels would require offsets. These threshold emission levels are shown in Table 5.

**TABLE 5**  
**NEW SOURCE REVIEW THRESHOLD EMISSION LEVELS**

Air District	New Source Review Threshold Emission Levels per Pollutant (tons/year)			
	PM <sub>10</sub>	SO <sub>x</sub>	VOC	NO <sub>x</sub>
KCAPCD	15	27	25	25
MDAQMD	15	25	25	25
AVAPCD	4	4	4	4

Source: Zellar 1999

Notes: 1. PM<sub>10</sub> – particulate matter less than or equal to 10 microns

2. SO<sub>x</sub> – sulfur oxides

3. VOC – volatile organic compounds

4. NO<sub>x</sub> – oxides of nitrogen

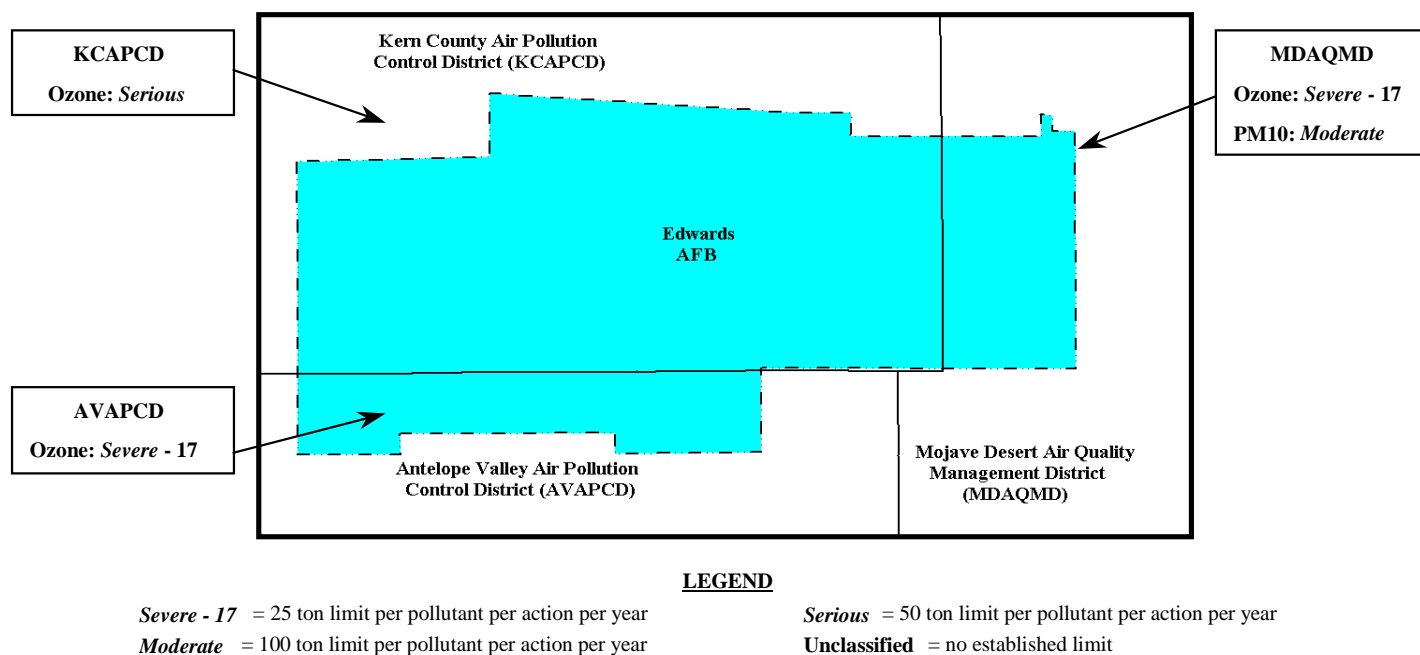
5. KCAPCD – Kern County Air Pollution Control District

6. MDAQMD – Mojave Desert Air Quality Management District

7. AVAPCD – Antelope Valley Air Pollution Control District

# EDWARDS AFB

## Current NAAQS Attainment Status



SOURCE: 40 Code of Federal Regulations (CFR) 81.305

Figure 9 Attainment Status Map

In addition to the requirements for regulation of criteria pollutants, the CAAA also sets forth regulations to control emissions of HAPs. The HAPs are defined as air pollutants that cause serious human health effects including mortality. Title III of the CAAA lists 17 compounds and 171 chemicals (188 total pollutants) that are defined as HAPs and are regulated by the U.S. EPA. Since pollutants can be added to and deleted from this list, the 188 pollutants should be recognized as the initial list and not the ultimate list of HAPs. Chemicals listed range from trace metals, which are inherent in fuel combustion; to solvents, which are used in a variety of painting, degreasing, and cleaning operations; and to chemical intermediates used to produce a variety of everyday products (Bradstreet 1995).

Title III of the CAAA requires the U.S. EPA to develop a set of rules and regulations designed to implement control technologies and procedures that limit HAP emissions.<sup>1</sup> These rules and regulations are collectively known as the National Emissions Standards for Hazardous Air Pollutants (NESHAP). The U.S. EPA is required to develop specific NESHAP for a wide range of industrial source categories. A NESHAP that applies to Edwards AFB is the Aerospace NESHAP (40 CFR Part 63, Subpart GG). This NESHAP controls HAP emissions resulting from aerospace manufacturing and rework facilities.<sup>2</sup> The applicability of a NESHAP to a facility operation is determined by the potential-to-emit (PTE) of HAPs from all applicable sources and a PTE threshold value that is set by the area nonattainment status. Edwards AFB is defined as a major source of HAPs and must comply with the Aerospace NESHAP. The HAP PTE threshold values for all local districts are 10 tons per year for a single HAP and 25 tons per year for any two or more HAPs.

### 3.2.3 Conformity Requirements

Federal facilities located in a NAAQS nonattainment area are required to comply with Federal Air Conformity rules and regulations of 40 CFR 51/93. Under Air Conformity, a facility (such as Edwards AFB) that initiates a new action (such as the proposed action) must quantify air emissions from stationary and mobile sources associated with that action. Calculated emissions are first compared to established *de minimis* emission levels (based on the nonattainment status for each applicable criteria pollutant in the area of concern) to determine the relevant compliance requirements. If the calculated emissions are equal to or greater than *de minimis* levels, then the requirements of air conformity apply to the action.

The proposed project is located within the Kern County portion of Edwards AFB. Thus, the NAAQS nonattainment and regional planning emission inventories for KCAPCD would be used to determine the applicability of air conformity requirements to the proposed action.

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<sup>1</sup> The HAP emission sources at Edwards AFB can occur from stationary sources and/or operations such as: aboveground storage tanks (ASTs), cleaning operations, degreasers, fuel dispensing activities, general solvent use, internal combustion engines, jet engine testing, lubricating operations, paint booths, painting operations, heaters, welding/soldering machines, and underground storage tanks (USTs).

<sup>2</sup> Typical processes and operations at Edwards AFB include hand-wipe cleaning, spray gun cleaning, primer and topcoat application, depainting, waste storage and handling, and chemical milling maskant.

In accordance with the air conformity requirements of 40 CFR 51.853/93.153(b)(1) and KCAPCD Rule 210.7, the *de minimis* level set for the O<sub>3</sub> *serious* nonattainment area of KCAPCD for O<sub>3</sub> precursor emissions is up to 50 tons per O<sub>3</sub> precursor pollutant (NO<sub>x</sub> and VOC) per year per action.

In addition, even if calculated emissions are less than *de minimis* levels, a subsequent comparison must be made. Specifically, the calculated project emissions must be compared to the regional planning emission inventories for each applicable criteria pollutant in the nonattainment area of concern. If the calculated emissions are equal to or greater than 10 percent of the regional planning emission inventory, then the action is considered to be regionally significant and the requirements of air conformity apply. Otherwise, if the calculated emissions are less than both *de minimis* levels and 10-percent of the regional planning emission inventories, then the requirements of air conformity do not apply to the action. Table 6 shows the 1990 baseline values and the 10-percent threshold values.

**TABLE 6**  
**1990 BASELINE AND 10-PERCENT THRESHOLD VALUES**

	1990 Baseline Values (tons/year)			10-Percent Threshold Values (tons/year)		
District	NO <sub>x</sub>	VOC	PM10	NO <sub>x</sub>	VOC	PM10
AVAPCD	10,220	12,775	N/A	1,022	1,277.5	N/A
KCAPCD	14,965	6,205	N/A	1,496.5	620.5	N/A
MDAQMD	41,610	16,790	34,310	4,161	1,679	3,431

- Notes: 1. NO<sub>x</sub> – oxides of nitrogen  
 2. VOC – volatile organic compound  
 3. PM10 – particulate matter less than or equal to 10 microns  
 4. AVAPCD – Antelope Valley Air Pollution Control District  
 5. KCAPCD – Kern County Air Pollution Control District  
 6. MDAQMD – Mojave Desert Air Quality Management District

For KCAPCD, MDAQMD, and AVAPCD, the regional planning emission inventories for each district for O<sub>3</sub> precursor pollutant (NO<sub>x</sub> and VOC) emissions are included in the 1994 California O<sub>3</sub> SIP. In the California O<sub>3</sub> SIP, the regional planning baseline year is 1990 for each of the three districts. For MDAQMD, the regional planning emission inventory for PM10 pollutant emissions are from the 1990 baseline year.

### 3.3 Safety and Occupational Health

Health and safety is defined as the protection of workers and the public from hazards. The total accident spectrum encompasses not only injury to personnel, but also damage or destruction of property or products. For worker safety, the boundary of the immediate work area defines the region of influence.

At Edwards AFB, the potential health and safety issues associated with implementing the proposed action would include chemical and physical hazards and ground safety.

### 3.3.1 Regulatory Requirements/Guidance

The Occupational Safety and Health Administration (OSHA) has developed standards to promote a safe working environment. These standards establish general environmental controls, including personal protective equipment, wherever necessary because of hazards, processes, or the environment. Exposure limits for noise, ionizing and nonionizing radiation, and toxic and hazardous substances have been established, as well as requirements for handling and storing compressed gases and flammable liquids. The OSHA Act also provides standards for emergency response to releases of hazardous chemicals and hazardous wastes. The OSHA General Duty Clause, Section 5(a)1 states that employers will provide a workplace free of recognized hazards that cause or are likely to cause death or serious physical harm.

Federal OSHA requirements and AFIs are the applicable regulatory requirements. California Occupational Safety and Health Administration (Cal-OSHA) regulations do not apply to Edwards AFB DOD workers (i.e., military and civilian). Non-Federal contractors are responsible for meeting Cal-OSHA requirements. Per DOD instructions, the Air Force is not responsible for contractor compliance (Dooley 1998). Statutory and regulatory requirements of the Federal OSHA, Cal-OSHA, and the Air Force Occupational Safety and Health (AFOSH) Standards, which apply to the safety of workers on Edwards AFB, are enforced locally by Bioenvironmental Engineering, Ground Safety, and the Base Fire Department. In addition, operational safety is supervised by various offices for specific activities.

Title 29 CFR 1910.1001, *Asbestos*, applies to all occupational exposures to asbestos in all industries covered by the OSHA Act.

Title 29 CFR 1910.1025, *Lead*, applies to all occupational exposures to lead in all industries covered by the OSHA Act. Title 29 CFR 1926.62 applies to all construction work where an employee may be occupationally exposed to lead. All construction work is excluded from coverage in the general industry standard for lead by 29 CFR 1910.1025(a)(2) and is covered by this Standard. Construction work is defined as work for construction, alteration, and/or repair, including painting and decorating.

### 3.3.2 Exposure Hazards

A discussion of the existing environment as it relates to asbestos, heavy metal-based paints, and PCBs can be found in Section 3.4, Hazardous Materials and Waste.

### 3.3.3 Safety

The statutory and regulatory requirements of the Federal OSHA, Cal-OSHA, and the AFOSH Standards which apply to the safety of DOD workers on Edwards AFB are enforced locally by Bioenvironmental Engineering, AFFTC Safety, and the Base Fire Department. Operational safety is supervised by the Center Safety Office, which includes Flight, Ground, Test (Systems), Weapons, and Range Safety. The proposed action would include activities supervised by the Ground Safety Office. Safety managers use the Air Force Policy Directive (AFPD) 91-series, other AFI 91-series, and AFOSH standards, and applicable Federal, State, and AF guidance to implement the Base safety programs.

### 3.4 Hazardous Materials and Waste

A hazardous material is any material whose physical, chemical, or biological characteristics, quantity, or concentration may cause or contribute to adverse effects in organisms or their offspring; pose a substantial present or future danger to the environment; or result in damage to or loss of equipment, property, or personnel.

Hazardous wastes are those substances that have been “abandoned, recycled, or are inherently waste like” and which (because of their quantity, concentration, or characteristics) have the potential to cause an increase in mortality or serious irreversible illness, or pose a substantial hazard to human health or the environment if improperly treated, stored, transported, and/or disposed.

Solid waste refers to nonhazardous garbage, refuse, sludge, and any other discarded solid material resulting from residential, commercial, and industrial activities or operations. Solid waste can be classified as construction/demolition waste, nonhazardous recyclable waste, or nonhazardous nonrecyclable waste.

For purposes of this analysis, the terms hazardous material and hazardous waste mean the substances defined as hazardous by the *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA) and the *Resource Conservation and Recovery Act* (RCRA).

#### 3.4.1 Regulatory Requirements/Guidance

The RCRA (42 USC 6901) was enacted into law in 1976 and is administered by the U.S. EPA. It regulates the handling, transport, storage, treatment, and disposal of solid and hazardous waste. It places responsibility for hazardous waste on facilities generating the waste and requires them to meet the various standards regarding personnel training, facility inspections, waste identification and analysis, emergency response planning, and recordkeeping.

The CERCLA (42 USC 9601) was enacted by Congress on 11 December 1980. This Act created a tax on the chemical and petroleum industries and provided broad Federal authority to respond directly to releases or threatened release of hazardous substances that may endanger public health or the environment. The Act authorizes short-term removal actions and long-term remedial response actions. The Act established prohibitions and requirements concerning closed and abandoned hazardous waste sites; provided for liability of persons responsible for releases of hazardous waste at these sites; and established a trust fund to provide for cleanup when no responsible party could be identified.

The *Emergency Planning and Community Right-to-Know Act* (EPCRA) of 1986 (42 USC 11001-11050) was designed to promote emergency planning and preparedness at both State and local levels. It provides citizens and local governments with information regarding the potential hazards in their community. The Act requires the use of emergency planning and designates State and local governments as recipients for information regarding chemicals and toxins used in the community.

Air Force Instruction 32-7042, *Solid and Hazardous Waste Compliance*, implements AFPD 32-70, *Environmental Quality*. It identifies compliance requirements for all solid and hazardous waste, except radioactive waste<sup>3</sup>. In the United States and its territories, use this guidance with applicable Federal, State, and local standards for solid and hazardous waste. Specifically, it contains requirements for solid and hazardous waste characterization, training, accumulation, turn-in and disposal, as well as procedures for managing disposal contracts, inspections, permits, and recordkeeping.

### 3.4.2 Hazardous Materials

Edwards AFB uses a wide variety of hazardous materials in support of research activities at the AFFTC and its mission requirement to support all types of inventory aircraft. Hazardous materials are used for aircraft repair and maintenance, aircraft launch and recovery, aerospace ground equipment (AGE) repair and maintenance, building remodeling, and construction. Some of the most commonly used hazardous materials include jet and motor fuel, other types of petroleum products, paints, thinners, adhesives, cleaners, lead-acid batteries, hydraulic fluids, and halogenated and nonhalogenated solvents (USAF 1995).

The types of hazardous materials most commonly used during construction projects include acids, corrosives, caustics, glycols, compressed gases, paints and paint thinners, solvents, sealants, adhesives, cements, caulking, fire retardant, and hot asphalt (140 degrees Fahrenheit or greater). Building and facility maintenance requires the use of heating fuels, paints, aerosols, and fluorescent lightbulbs, all of which are hazardous materials.

When any project is considered at Edwards AFB, Program Introduction Documents or the equivalent are reviewed by Bioenvironmental Engineering and Environmental Management to identify any hazardous material/waste concerns. Prior to bringing any new hazardous material on Base, contractors are required to provide a copy of the relevant Material Safety Data Sheet (MSDS) to Bioenvironmental Engineering, who maintains a master hazardous material inventory list for Edwards AFB with all listed MSDSs.<sup>4</sup> All organizations and contractors are required to maintain strict inventories of all their hazardous materials. Furthermore, organizations are also required to reduce the quantity of hazardous material used or replace them with nonhazardous materials, if possible, as part of the Pollution Prevention Program. Guidelines used by Edwards AFB include AFI 32-7042, *Solid and Hazardous Waste Compliance*, and Air Force Flight Test Center Instruction (AFFTCI) 32-19, *Hazardous Materials Pharmacy Program*.

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<sup>3</sup> The applicable solid waste regulations are in Subtitle D of 40 CFR 240 to 244, 257, and 258; for hazardous waste, the applicable regulations are in Subtitle C, 40 CFR 260-272.

<sup>4</sup> Occupational Safety and Health Administration regulations (29 CFR 1910.1200, *Hazard Communication*) require MSDSs for all hazardous chemicals used on Base. The MSDS identifies a chemicals identity, its physical and health hazard information, safe handling and use procedures (including exposure control measures), and product use warnings. Air Force Occupational Safety and Health Standard 48-21, *Air Force Hazard Communication Program*, reestablishes the minimum requirements for an effective hazard communication program for personnel who use or produce hazardous chemicals.



### 3.4.3 Hazardous Waste

The use of hazardous materials results in the generation of hazardous waste (e.g., paint waste, used oil, contaminated rags, etc.), which require proper handling. The U.S. EPA enforces the RCRA (40 CFR 260-272), which provides guidelines for the generation, storage, transportation, and disposal of hazardous wastes. The Cal-EPA enforces hazardous waste laws embodied in the California Code of Regulations (CCR) (Title 22, Chapters 10-20) and the California State Health and Safety Code (Section 25100). Environmental Management manages hazardous waste accumulation. Guidelines used by Edwards AFB include the *Edwards Air Force Base Hazardous Waste Management Plan Number 32-7042* (HWMP) (AFFTC 1999), which was prepared in accordance with AFI 32-7042, *Solid and Hazardous Waste Compliance*. It establishes procedures to achieve compliance with applicable Federal, State, and local regulations for hazardous waste management, except munitions, explosives, biohazard, and radioactive waste<sup>5</sup>. Specifically, it contains requirements for solid and hazardous waste characterization, training, accumulation, turn-in and disposal, as well as procedures for inspections, permits, and recordkeeping.

#### 3.4.3.1 Asbestos-Containing Materials

Many of the structures on Edwards AFB were constructed prior to enactment of current legislation regarding asbestos. Asbestos is commonly found in ceiling tiles, walls, insulation, floor tiles, tile mastic, piping insulation, and in some paints. The U.S. EPA has established that any material containing more than 1-percent asbestos by weight is considered to be ACM, and must be handled in accordance with the procedures outlined in 40 CFR 61.141, Subpart M. Disturbance of regulation ACM without the use of proper engineering controls or personal protective equipment, and which causes visible emissions is a violation of the NESHAP (40 CFR 61.141, Subpart M). According to 40 CFR 61.141, Subpart M, “friable asbestos material means any material containing more than one percent asbestos...that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.” Asbestos-containing material remediation is regulated by the U.S. EPA and the OSHA.

The State of California defines asbestos-containing construction material as any manufactured construction material that contains more than 0.1 percent asbestos by weight (8 CCR 1529). Asbestos waste is considered a hazardous waste by the State of California and must be disposed of in an EPA-approved landfill.

#### 3.4.3.2 Lead-Based Paints

Lead-based paints were commonly used from the 1950s until recently. Lead is a heavy, ductile metal that is commonly found in association with organic compounds, as well as oxides, salts, or as metallic lead. Sources of exposure to lead are through paints, dust, and soil. Wastes containing levels of lead exceeding the Total Threshold Limit Concentration (TTLC) of 1,300 micrograms per kilogram or the soluble total lung capacity (TLC) of 5.0 milligrams per liter are defined as hazardous under 40 CFR 261 and applicable State regulations.

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<sup>5</sup> The applicable hazardous waste regulations are in Subtitle C, 40 CFR 260-272.

### 3.4.3.3 Other Paints

Mercury-based paints were commonly used in the United States prior to the 1950s. Chromium is used in some paints due to its corrosion inhibiting properties. Chromium has been detected in some paint samples from existing on-Base facilities. Lead-, mercury-, and chromium-based paints may therefore be present on exterior and interior painted surfaces in existing support buildings. Bioenvironmental Engineering and Environmental Management manage these hazardous wastes.

### 3.4.3.4 Polychlorinated Biphenyls

Polychlorinated biphenyls are a group of chemical mixtures produced by the chlorination of biphenyls. Polychlorinated biphenyls persist in the environment, accumulate in organisms, and concentrate in the food chain. Polychlorinated biphenyls are used as insulators in electrical equipment such as capacitors and transformers (i.e., pre-1976 fluorescent light ballasts<sup>6</sup>) because they are electrically nonconductive and stable at high temperatures. The Exterior Electric Shop manages transformer repair, including tests to determine the PCB content of transformers. Bioenvironmental Engineering and Environmental Management manage handling and disposal of these hazardous wastes, which are regulated under the Federal *Toxic Substances Control Act* (TSCA) (15 USC 2601-2671).

## 3.4.4 Solid Waste

Edwards AFB operates a nonhazardous (municipal solid) waste landfill located within the Main Base area. At current disposal rates, the landfill is expected to reach permitted capacity in the year 2019. Due to the volume of construction/demolition waste generated on Base, most current construction contracts require the contractor to dispose of such wastes at an approved off-Base landfill in order to reduce impacts to the Main Base landfill.

The Base actively participates in a recycling program. Joe Torres Co., Inc., operates the program under contract with Edwards AFB, with program oversight provided by the Environmental Management Office. Some waste metals generated during construction and demolition projects, as well as the routine operations of various Base organizations, are diverted to the Defense Reutilization Marketing Office (DRMO) for resale. In addition, waste tires are diverted from the landfill to the DRMO for recycling or proper disposal.

## 3.5 Biological Resources

Naturally occurring organisms, the physical and biological aspects of their environment, and the relationships between them make up biological resources. In general, biological resources include native and introduced plants that comprise the various habitats, the animals that are found in such habitats, and natural areas that help to support plant and wildlife populations.

Edwards AFB contains and manages biological resources that are typical of desert environment. These include animal and plant species (including the associated habitats of each), floodplains, watersheds, and jurisdictional waters.

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<sup>6</sup> If a fluorescent light ballast is not marked “non-PCB”, it is considered to contain PCBs.

### 3.5.1 Regulatory Requirements/Guidance

The *Endangered Species Act* of 1973 (16 USC 1531-1544), as amended, provides for the conservation of ecosystems upon which threatened and endangered species of fish, wildlife, and plants depend. The ESA also provides broad protection for species of fish, wildlife, and plants that are listed as threatened or endangered in the United States. Provisions are made for listing species, as well as for recovery plans and the designation of critical habitat for listed species. The ESA outlines procedures and contains exceptions and exemptions for Federal agencies to follow when taking actions that may jeopardize listed species. The purposes of the ESA are to provide a means of conserving the ecosystems upon which endangered and threatened species depend; provide a program for conserving those species through Federal action and encouraging the establishment of State programs; and to take steps necessary to achieve the purposes of the international treaties and conventions. The ESA requires all Federal agencies to consult with the USFWS to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitat.

The *Migratory Bird Treaty Act* (16 USC 703-712), as amended, provides for Federal protection of all migratory bird species and their active nests. Permits are required to remove these birds from their roosting and nesting areas. The United States Government and its employees are exempt from the MBTA permit requirements based on a court decision in 1997 (Erickson 1997). Non-Federal personnel are required to obtain a depredation permit from the USFWS prior to removal or disturbance of nesting migratory birds.

### 3.5.2 Animal Species

#### 3.5.2.1 Desert Tortoise

The desert tortoise is a herbivorous reptile whose native range includes the Sonoran and Mojave deserts of southern California, southern Nevada, Arizona, extreme southwestern Utah, and Sonora and northern Sinaloa, Mexico. Desert tortoises are known to occur on Edwards AFB in a variety of habitats.

The proposed project is within the habitat of the desert tortoise. The desert tortoise is Federally listed as threatened under the ESA and State listed as threatened by the California Fish and Game Commission. The desert tortoise is native exclusively to western deserts, including the West Mojave, and is managed continuously at Edwards AFB.

The proposed project is covered by the *Biological Opinion for Routine Operations and Facility Construction within the Cantonment Areas of Main and South Bases, Edwards Air Force Base, California* (1-6-91-F-28) (USFWS 1991) with respect to protection of the desert tortoise and its habitat.

The *Biological Opinion for the Development and Operation of Eight Borrow Pits throughout the Air Force Flight Test Center in Kern, Los Angeles, and San Bernardino Counties, California* (1-8-96-F-56) (USFWS 1997) authorizes use of Borrow Sites A, B (16), C, 1, 5, 21, 23, and 28 with respect to the protection of desert tortoise and its habitat. The *Biological Opinion for the Precision Impact Range Area, Edwards Air Force Base, California* (1-8-94-F-6) (USFWS 1994) authorizes the use of Borrow Sites 15, 17, 18, and 20 (USFWS 1996) with respect to protection

of the desert tortoise and its habitat. Further description of each borrow site can be found in the Geology and Soils section of this document.

### 3.5.2.2 Common Birds

Three common birds that are typically encountered in and around facilities and buildings include the common raven (*Corvus corax*), barn owl (*Tyto alba*), and house finch (*Carpodacus mexicanus*). The common raven is very common on Base. It is found in virtually every habitat, but frequents the landfills and other developed areas at Edwards AFB. It typically nests in large trees and power poles along transmission lines. The common raven preys on young birds in nests and juvenile desert tortoises.

The barn owl occurs throughout various habitats on Base, and seems to prefer nesting in aircraft hangars, abandoned buildings and facilities, buildings under construction, sheds, and under open canopy structures.

The house finch is very common on Base and occurs in most habitats associated with buildings and facilities. It typically nests in shrubs, hedges, small trees, and eaves of roofs of buildings and other structures in well developed areas.

### 3.5.3 Plant Species

The proposed project sites are located in arid phase saltbush scrub. Arid phase saltbush scrub is dominated by allscale (*Atriplex polycarpa*). At Edwards AFB, there are approximately 45,300 acres of arid phase saltbush scrub that comprises approximately 15 percent of the area of the Base. Common species found in this community include burrobrush (*Ambrosia dumosa*), goldenhead (*Acamptopappas sphaerocephalus*), and cheesebush (*Hymenoclea salsola*). For a more complete list of plant species at Edwards AFB, see the *Plant Species of Edwards Air Force Base* (Charlton 1994).

## 3.6 Geology and Soils

Geologic resources consist of naturally formed minerals, rocks, and unconsolidated sediments. Soil refers to the uppermost layers of surficial geologic deposits and is developed by the weathering of those deposits. Concerns associated with the geologic setting at Edwards AFB, which could either affect or be affected by a proposed project, include: topography, material site use, seismicity, and land subsidence.

### 3.6.1 Regulatory Requirements/Guidance

The CERCLA (42 USC 9601) was enacted by Congress on 11 December 1980. This Act created a tax on the chemical and petroleum industries and provided broad Federal authority to respond directly to releases or threatened release of hazardous substances that may endanger public health or the environment. The Act authorizes short-term removal actions and long-term remedial response actions. The Act established prohibitions and requirements concerning closed and abandoned hazardous waste sites; provided for liability of persons responsible for releases of hazardous waste at these sites; and established a trust fund to provide for cleanup on non-DOD property when no responsible party could be identified.

The RCRA (42 USC 6901) was enacted into law in 1976 and is administered by the U.S. EPA. It regulates the handling, transport, storage, treatment, and disposal of solid and hazardous waste. It places responsibility for hazardous waste on facilities generating the waste and requires them to meet the various standards regarding personnel training, facility inspections, waste identification and analysis, emergency response planning, and recordkeeping.

### 3.6.2 Topography

The United States Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS) has completed a soil survey of Edwards AFB for the USACOE. The *Grazing and Cropland Management Plan for Edwards Air Force Base, California* (USACOE 1997) describes results of the soil survey that was conducted by the USDA. Based on this survey, the soils at Edwards AFB can be characterized as predominantly alkaline, consisting of loams, sandy loams, and loamy sands, all of which are susceptible to wind and water erosion. According to the *Soil Survey of Edwards Air Force Base, California, Interim Report* (USDA Soil Conservation Service [SCS] 1998), the soils of Edwards AFB are given erosion hazard ratings of slight to severe for wind erosion and slight to moderate for water erosion.

### 3.6.3 Material Site Use

Fill material would be required for the construction of the new dormitories where existing site soils are not sufficient in volume or type and do not meet engineering requirements. Fill material would be used for a variety of purposes, including, but not limited to, supporting concrete foundations, stabilizing soil surfaces, and elevating the building pad.

The *Final Environmental Assessment for Borrow Sites at Edwards Air Force Base, California* (USACOE and AFFTC 1996) discusses the environments, advantages, and disadvantages associated with the use of on-Base borrow sites. It proposes the approval of five sites (1, 5, 21, 23, and 28) in addition to those previously in use (Figure 10).

The approved borrow sites located west of Rogers Dry Lake are A, C, 1, 5, 21, and 28. Borrow Sites 1 and 21 are located along western Rosamond Boulevard. Borrow Sites C and 5 are located in the northern portion of the Base near the Main Base landfill. Borrow Site A is a heavily used borrow site located near South Base that was not described in the *Final Environmental Assessment for Borrow Sites at Edwards Air Force Base, California* (USACOE and AFFTC 1996). Borrow Site 28 is located on North Base Road (Figure 10).

The approved borrow sites located east of Rogers Dry Lake are B (16), 15, 17, 18, 20, and 23. Cultural Resource site survey data for most of these sites are incomplete (Figure 10). A summary of the issues associated with these borrow sites is presented in Table 7. Additional earth materials are acquired from county-approved, off-Base, commercial sources (i.e., have approved permits, environmental clearances).

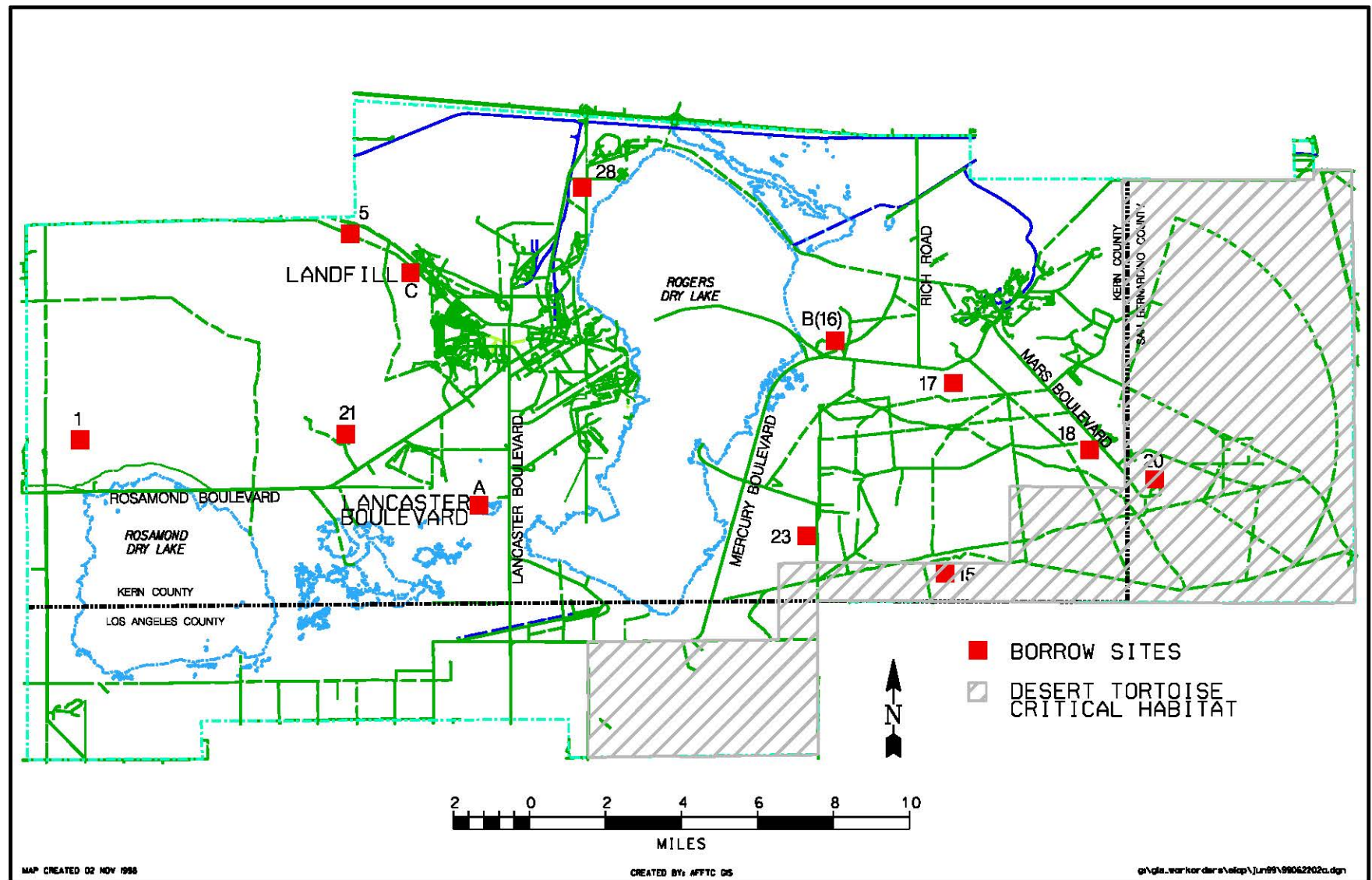


Figure 10 Borrow Sites on Edwards AFB

**TABLE 7**  
**SUMMARY OF ISSUES ASSOCIATED WITH APPROVED BORROW SITES**

Borrow Site	Location	Biological Resources Concerns	Previously Surveyed for Cultural Resources	ERP Concerns in the Vicinity
A	South Base (West of Lancaster Boulevard)	Covered by USFWS 1997 Desert tortoise relative density of 7/sq mile	Yes, Byrd 1996	Yes
B (16)	Rogers Lake, East Shore	Covered by USFWS 1997 Desert tortoise relative density of 27/sq mile	Yes, Boyer 1994	Yes
C	Main Base Landfill	Covered by USFWS 1997 Desert tortoise relative density of 20/sq mile	Yes, Howard 1991, Perry 1989, and McGetrick 1996	Yes
1	Red Hill	Covered by USFWS 1997 Desert tortoise relative density of 9/sq mile Cliff dwelling bird habitat.	Yes, Pittman 1997	Yes
5	Northwest of Main Base Landfill	Covered by USFWS 1997 Desert tortoise relative density of 9/sq mile Near desert cymopterus populations.	Yes, Pittman 1997	No
15	Precision Impact Range Area (PIRA)	Covered by USFWS 1994 Desert tortoise relative density of 38/sq mile Within desert tortoise critical habitat. Near desert cymopterus populations.	No	No
17	PIRA	Covered by USFWS 1994 Desert tortoise relative density of 22/sq mile Near desert cymopterus populations.	No	Yes
18	PIRA	Covered by USFWS 1994 Desert tortoise relative density of 13/sq mile Near desert tortoise critical habitat Near desert cymopterus populations	No	No
20	PIRA	Covered by USFWS 1996 Desert tortoise relative density of 13/sq mile Within desert tortoise critical habitat Near Desert cymopterus populations	No	Yes
21	West Rosamond Boulevard	Covered by USFWS 1997 Desert tortoise relative density of 18/sq mile	Yes, Pittman 1997	Yes
23	PIRA	Covered by USFWS 1997 Desert tortoise relative density of 16/sq mile Near desert tortoise critical habitat Near Desert cymopterus populations	No	No
28	North Base Road	Covered by USFWS 1997 Desert tortoise relative density of 10/sq mile	Yes, Pittman 1997	Yes

Notes: 1. ERP – Environmental Restoration Program  
2. sq mile – square mile  
3. USFWS – United States Fish and Wildlife Service

Sources: AFFTC, 1993, *Biological Resources Environmental Planning Technical Report Focused Sensitivity Species Surveys*.

AFFTC, 1996, *Relative Density Estimates of Desert Tortoises on Edwards Air Force Base, California*.

Boyer, 1994, *Addendum to Phase I Historic Properties Inventory for the Proposed Repair and Repaving of Rich Road, Edwards AFB, Kern County, California*.

Byrd, 1996, *Camping in the Dunes: Archaeological and Geomorphological Investigations of Late Holocene Settlements West of Rogers Dry Lake*.

Howard, 1991, *Cultural Resources Inventory for the Proposed Landfill Expansion, Sections 17, 20, and 21, T.10N., R.10W., San Bernardino Base Meridian, Edwards AFB, Kern County, California*.

McGetrick, 1996, *Phase I Cultural Resources Inventory for the Proposed Enlargement of an Excavation Pit, Edwards AFB, Kern County, California*.

Perry, 1989, *Test and Evaluation of CA-KER-564*.

Pittman, 1997, *Phase I Cultural Resources Inventory for the Proposed Edwards Air Force Base Borrow Site, Edwards AFB, Kern County, California*.

USFWS, 1994, *Biological Opinion for the Precision Impact Range Area, Edwards Air Force Base, California* (1-8-94-F-6).

USFWS, 1996, *Request for Amendment of the Biological Opinion (1-8-94-F-6) for the Precision Impact Range Area, Edwards Air Force Base, California*.

USFWS, 1997, *Biological Opinion for the Development and Operation of Eight Borrow Pits throughout the Air Force Flight Test Center in Kern, Los Angeles, and San Bernardino Counties, California* (1-8-96-F-56).

### 3.6.4 Seismicity

The geologic and structural development of the vicinity surrounding Edwards AFB has been measurably affected by tectonic activity. The Mojave Structural Block is wedged between two major intersecting shear zones; the northeast trending Garlock Fault, which controls the trend of the Tehachapi Mountains to the northwest of Edwards AFB, and the northwest trending San Andreas Fault system, which bounds the San Gabriel Mountains to the south. Both fault zones have had substantial activity in the Quaternary period. The San Andreas Fault zone is the more dominant of the two, with a known length of about 600 miles and right-lateral displacement of up to 350 miles. The Garlock Fault zone is traceable for more than 150 miles and has left-lateral displacement (Weston 1986).

The Mojave Block reflects characteristic Basin and Range tensional horst and graben structure resulting from the tectonic “wrenching” of the adjacent fault system.

Like much of Southern California, Edwards AFB is subject to earthquake activity and associated seismic hazards. At least eight minor faults are known, or are suspected because of their trends, to be present within the boundaries of Edwards AFB; however, no fault has been active in the last 11,000 years. A local fault seismicity map shows the surface traces of these faults (Figure 11).

Few earthquakes have been recorded within the triangular area formed between the San Andreas and Garlock Faults that includes Edwards AFB (United States Geological Survey [USGS] 1988). Of these, just four have been recorded with epicenters within or near the Base boundary, and all had Richter magnitudes less than 4.4. Another earthquake (magnitude between 4.5 and 6.4) occurred at Bissell, approximately 2 miles northwest of the Base. The on-Base intensity of these off-Base events is unknown. Seismic activity in the Antelope Valley is most prevalent along, and northwest of the Garlock Fault, and along and southwest of the San Andreas Fault (AFFTC 1997c).

The San Andreas Fault lies approximately 28 miles southwest of the Main Base on Edwards AFB, trending southeast-northwest on the west side of Palmdale, California. The Garlock Fault lies approximately 20 miles northwest of the Main Base. It has a southwest-northeast trend and meets the San Andreas Fault 60 miles west of the Base. These are major, active faults with evidence of Holocene (last 30,000 years) movement (AFFTC 1997c, AFFTC 2001).

## 3.7 Socioeconomics

Socioeconomic resources are the economic, demographic, and social assets of a community. Key elements include fiscal growth, population, employment, housing, schools, and environmental justice.



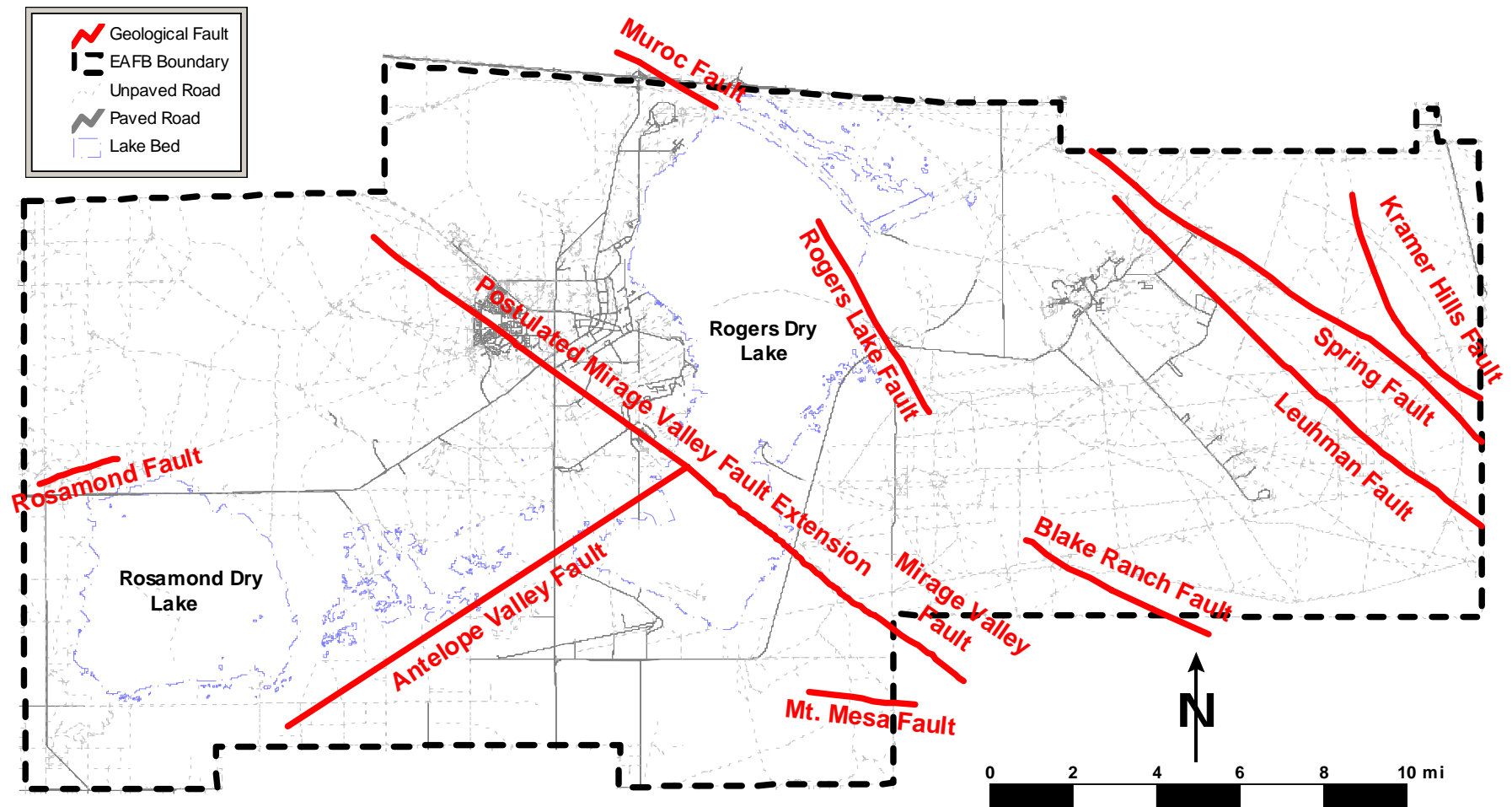


Figure 11 Local Fault Seismicity Map

For the purposes of this EA, the boundary of the socioeconomic environment is defined by those counties, or portions of counties, in which the proposed action will occur. The economic impact region (EIR) includes all areas within this boundary. The EIR for an impacted community is fundamentally important to the analysis because it defines the area in which changes in fiscal growth, population, labor force and employment, housing stock and demand, and school enrollment will be assessed. The EIR for Edwards AFB is that area located within 75 miles of the Main Base, and includes portions of Los Angeles, Kern, and San Bernardino counties. However, a majority of potential socioeconomic impacts from Base activities would be expected to occur within the Antelope Valley area (Figure 12).

### **3.7.1 Regulatory Requirements/Guidance**

The *Stewart McKinney Homeless Assistance Act* (42 USC 11411) addresses the use of unutilized and underutilized public buildings and real property to assist the homeless and makes serving the homeless the first priority for use of all surplus Federal properties, including military facilities. Other provisions of the Act include the establishment of the Interagency Council on Homelessness, and the authorization of the Emergency Food and Shelter Program, various emergency shelter and transition housing programs, homeless health care services, and education programs for homeless children and adults.

### **3.7.2 Fiscal Growth**

Edwards AFB makes a substantial contribution to the economic status of the surrounding communities within the Antelope Valley of California. For Fiscal Year 1998, the estimated cumulative economic impact from Edwards AFB's annual operating expenditures including salaries, DOD acquisitions, and educational assistance on the surrounding communities was \$1,288,582,775 (AFFTC 1998).

## **3.8 Infrastructure**

Infrastructure refers to the utility and transportation systems located on Base. Elements of the Base infrastructure system include water, wastewater, electricity, natural gas, liquid fuel distribution systems, communication lines (e.g., telephone, computer, etc.), and circulation systems (streets and railroads), which run in a network throughout the Base.

### **3.8.1 Regulatory Requirements/Guidance**

The Uniform Building Code (UBC) establishes minimum standards to safeguard life, health, property, and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all buildings and structures.

### **3.8.2 Utilities**

Existing utility lines run in a network throughout the Base. Water mains are typically transite (i.e., asbestos cement) pipe. Service lines are galvanized steel or copper pipes. Sewer lines are vitrified clay pipes beyond 5 feet from building lines, and cast iron within the 5-foot line and under building slabs. Natural gas lines are wrapped black steel or plastic pipe. Some of the buildings in the project area may have underground electric service.

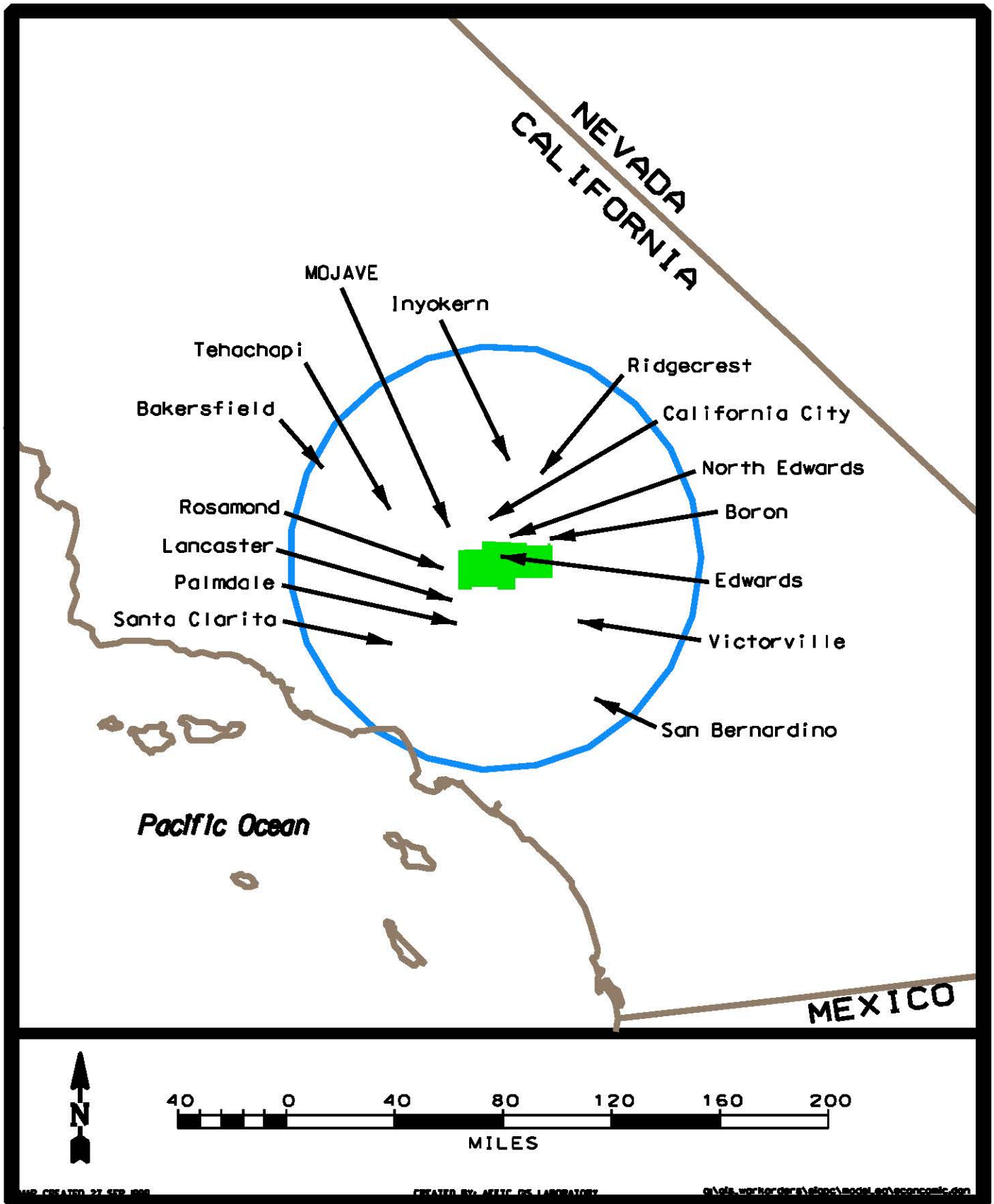


Figure 12 Economic Impact Region Map

### 3.8.3 Transportation

Internal circulation on Base is by way of paved and unpaved primary, secondary, and tertiary streets. Primary roads connect Edwards AFB components such as the flightline, Engineering and Administration, and support areas to entry points. Secondary roads connect Edwards AFB components to one another and support facilities such as commercial or housing areas. Tertiary roads are unpaved access roads or residential streets within the housing areas (AFFTC 1997a).

Lancaster and Rosamond Boulevards are the two primary streets on Main Base. These two primary streets form the spine of the Base street system, providing high speed, high-volume access to connecting secondary and arterial streets and activity centers on Main Base. Significant secondary streets are Fitzgerald Avenue, Forbes Avenue, Yeager Boulevard, and Wolfe Avenue. These streets are typically multilane, with on-street parking prohibited, and a maximum posted speed limit of 45 miles per hour (mph). All other Main Base streets are classified as tertiary and service local areas of Main Base. The proposed action sites are adjacent to Airmen's Drive, Rosamond Boulevard, and Popson Avenue. These streets are located in the Main Base area.

Traffic is comprised of Government, contractor, and personally owned vehicles belonging to those that live and/or work on Base. In addition, commercial vehicles deliver material to businesses and facilities in the area. Commercial and Air Force vehicles are used for service and construction work done in the area (e.g., repairs, etc.). Emergency vehicles require access to all buildings and streets.

## 3.9 Environmental Justice and Protection of Children

### 3.9.1 Regulatory Requirements/Guidance

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires that Federal agencies conduct their programs, policies, and activities that substantially affect human health or the environment in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under such programs, policies, and activities because of their race, color, or national origin. The essential purpose of EO 12898 is to ensure the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no groups of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of Federal, State, Tribal, and local programs and policies.

Executive Order 13045, *Protection of Children from Environmental Health and Safety Risks*, requires Federal agencies, to the extent permitted by law and mission, to identify and assess environmental health and safety risks that might disproportionately affect children. The Order further requires Federal agencies to ensure that their policies, programs, activities, and standards address these disproportionate risks. The Order defines environmental health and safety risks as “risks to health or to safety that are attributable to products or substances that the child is likely to come in contact with or ingest (such as the air we breathe, the food we eat, the water we drink and use for recreation, the soil we live on, and the products we use or are exposed to).”

## **4.0 ENVIRONMENTAL CONSEQUENCES**

This section provides a description of the potential environmental impacts associated with implementing all the alternatives, as well as minimization measures to reduce or eliminate anticipated impacts. This section also presents an assessment of cumulative impacts, unavoidable adverse impacts, the relationship of short-term uses of the environment to its productivity, and the irreversible and irretrievable commitment of resources.

### **4.1 Land Use**

#### **4.1.1 Alternative A Impacts**

##### **4.1.1.1 On-Base Land Use Impacts**

All alternatives of the proposed project would be located west of North Muroc Drive, south of Methusa Road, east of Fitzgerald Avenue and north of Rosamond Boulevard. This is consistent with the land use designation established in the Base General Plan. Construction of Phase II of the dormitories would be consistent with the Edwards AFB Design Standards. Consultation with Engineer Division Office for coordination of architectural styles and paints schemes, and with the Design/Construction Flight Office for the design of signs, roads, parking, utilities, landscapes, etc., would ensure consistency with the Edwards AFB Design Standards and the intent of the Base General Plan. The proposed project must obtain final siting approval from the Base Planning and Zoning Committee. Therefore, no significant impacts to on-Base land use would be anticipated.

##### **4.1.1.2 Noise Annoyance Impacts**

The proposed project is located in the Main Base area adjacent to the Chapel and existing dormitories. Construction of the new dormitories and the demolition of Buildings 2410, 2411, 2413, and 2418 could potentially expose the chapel and existing dormitories to increased noise levels from construction equipment and vehicles. These activities would occur off and on for the duration of the project. However, use of the measures listed below would help minimize the impact. Therefore, no significant impacts are anticipated.

#### **4.1.2 Alternative A Minimization Measures**

The following minimization measures are required or recommended:

- a. Internal combustion engines in construction equipment must be maintained with an appropriate muffler in order to reduce noise.
- b. Portable noise screens may be required between the project area and the existing dormitories and chapel in order to reduce noise levels.
- c. Proposed project activities should be limited to the hours of 0700 to 1900 hours to reduce potential noise impacts to noise sensitive receptors.
- d. The proponent/contractor should notify adjacent noise sensitive receptors when high-noise levels are anticipated to allow affected facilities the option of planning activities around the time periods to minimize exposure.

#### **4.1.3 Alternative B Impacts**

The impacts under this alternative would be the same as those under Alternative A.

#### **4.1.4 Alternative B Minimization Measures**

The minimization measures for this alternative are the same as those under Alternative A.

#### **4.1.5 Alternative C Impacts**

The impacts under this alternative would be the same as those under Alternative A.

#### **4.1.6 Alternative C Minimization Measures**

The minimization measures for this alternative are the same as those under Alternative A.

#### **4.1.7 Alternative D Impacts**

The impacts under this alternative would be less than those under Alternative A due to the increased distance from some of the existing dormitories and the chapel.

#### **4.1.8 Alternative D Minimization Measures**

The minimization measures for this alternative are the same as those under Alternative A.

#### **4.1.9 Alternative E Impacts**

Under this alternative, construction of the new dormitories and the demolition of the old dormitories would not occur. Therefore, no impacts to land use would be anticipated.

#### **4.1.10 Alternative E Minimization Measures**

No minimization measures are required or recommended.

### **4.2 Air Quality**

#### **4.2.1 Alternative A Impacts**

A short-term degradation in air quality may be experienced during construction and demolition activities. Fugitive dust emissions (i.e., PM<sub>10</sub>) could be generated by grading areas and driving off established paved roadways. Use of associated motor vehicles and construction equipment could cause degradation in air quality from engine emissions.

The proposed action would involve use of construction equipment over 50 bhp. If such equipment remains on Base for more than 45 days, an air quality operation permit is required from the KCAPCD. This would ensure no significant impacts occur.

Hazardous air pollutants are considered to be (or have the potential to be) carcinogenic, mutagenic, toxic, poisonous, and may cause nausea and a variety of immunological,

neurological, reproductive, developmental, and respiratory effects. Exposure to HAPs could result in immediate or future health problems and can range from short-term minor illness to sudden death, depending upon the nature of the pollutant and the circumstance of the exposure.

Hazardous air pollutant emissions generated from construction activities could include, but are not limited to, xylene, trichloroethane, hexane, toluene, beryllium compounds, hydrochloric acid, chromium compounds, cobalt compounds, methanol, lead compounds, polycyclic compounds, acrylic acid, mercury compounds, formaldehyde, nickel compounds, and styrene. These HAP emissions would be short-term, occurring only during construction. Compliance with all CAA Title III, *Hazardous Air Pollutants*, requirements or any more stringent State or local requirements as they apply to stationary sources that emit HAPs would be required. Therefore, no significant impacts would be expected.

A conformity determination in accordance with 40 CFR 93.153(c)(1) is not required as the total direct and indirect emissions from the action alternatives are below the *de minimis* thresholds specified in 40 CFR 93.153(b)(1), and are not regionally significant.

For Edwards AFB, the total HAP emissions were 12.1591 and 8.8857 tons in 1996 and 1997, respectively. Total air emissions for the proposed action from all sources (mobile and stationary) are estimated to be 16.68 tons of NO<sub>x</sub> and 5.37 tons of VOC and are considered to be *de minimis* under 40 CFR 51.853/93.153(b)(1). A copy of the conformity letter and emission calculations can be found in Appendix A. The proposed action would comply with all applicable Federal, State, and local laws and regulations. Compliance with the minimization measures listed in Section 4.2.2 would further reduce anticipated impacts due to criteria pollutant or ozone precursor pollutant air emissions. Therefore, no significant impacts are expected.

The relevant and applicable *de minimis* levels for criteria pollutant emissions in KCAPCD is already less than the corresponding 10-percent threshold values. The proposed action has emissions that are below *de minimis* levels. Thus, the proposed action would not have a regionally significant impact.

#### **4.2.2 Alternative A Minimization Measures**

The following minimization measures are required or recommended:

- a. The proposed project shall comply with all applicable KCAPCD rules and regulations.
- b. The proposed project shall comply with all applicable rules and regulations as identified in AFI 32-7040, *Air Quality Compliance*.
- c. The proposed project shall comply with all BACT specified in KCAPCD Rule 210.1, *New and Modified Stationary Source Review (NSR)*.
- d. Air quality operational permits are required for all construction equipment containing more than 50 bhp, if such equipment remains on Base for more than 45 days.
- e. The proposed project shall comply with all CAA Title III, *Hazardous Air Pollutant*, requirements or any more stringent State or local requirements as they apply to stationary sources that emit HAPs.



- f. All vehicles transporting clean fill material or construction debris would require a cover to reduce PM10 emissions during transport.
- g. All earthwork should be planned and conducted to minimize the duration that soils would be left unprotected. The extent of the area of disturbance necessary to accomplish the project should be minimized. Exposed surfaces should be periodically sprayed with water or soil binder. Use of soil binders should be coordinated with Environmental Management as some soil binders contain hazardous materials.
- h. Ground disturbance activities should be delayed during high-wind conditions (over 25 mph).

#### **4.2.3 Alternative B Impacts**

The impacts under this alternative would be the same as those under Alternative A.

#### **4.2.4 Alternative B Minimization Measures**

The minimization measures for this alternative are the same as those under Alternative A.

#### **4.2.5 Alternative C Impacts**

The impacts under this alternative would be the same as those under Alternative A.

#### **4.2.6 Alternative C Minimization Measures**

The minimization measures for this alternative are the same as those under Alternative A.

#### **4.2.7 Alternative D Impacts**

The impacts under this alternative would be the same as those under Alternative A.

#### **4.2.8 Alternative D Minimization Measures**

The minimization measures for this alternative are the same as those under Alternative A.

#### **4.2.9 Alternative E Impacts**

Under this alternative, construction of the new dormitories and the demolition of the old dormitories would not occur. Therefore, no impacts to air quality are anticipated.

#### **4.2.10 Alternative E Minimization Measures**

No minimization measures are required or recommended.

## **4.3 Safety and Occupational Health**

### **4.3.1 Alternative A Impacts**

Elements of the existing environment can pose health and safety issues for personnel during construction and demolition activities. Specifically, the proposed action has the potential to expose personnel to ACM, heavy metal-based paints, and PCBs during demolition of the existing dormitories.

Asbestos is a known human carcinogen and lung disease hazard, and can pose a serious chronic health risk. The ACM, when disturbed, can release asbestos fibers that easily become airborne. Once airborne, the aerodynamic shape and density of the fibers enable them to stay airborne for days. Inhalation or ingestion of these tiny asbestos fibers can occur without workers or occupants being aware of their exposure. Adherence to Federal, State, and local laws and regulations would minimize potential health effects during removal and disposal of ACM.

Lead is a cumulative poison that enters the body by inhalation, ingestion, or absorption. Optic, digestive, and nervous systems can be affected by lead. Mercury is corrosive to the skin, eyes, and mucous membranes. When high concentrations of mercury enter the body by inhalation, they act as a poison, causing severe respiratory damage. Chronic exposure to lower concentrations of mercury can cause central nervous system damage. Some chromate dusts are severe irritants of the nasopharynx, larynx, lungs, and skin. Chromium is considered a potential inhalation and ingestion hazard. Routes of entry are inhalation, ingestion, and eye and skin contact.

Activities associated with the demolition of the existing dormitories may cause the release of dust contaminated with asbestos and heavy metal-based paints into the air. The dust can settle upon the ground or other surfaces. Workers and others in the area of the proposed project activities are at risk of contact with these materials. Compliance with all applicable laws and regulations would minimize health and safety hazards to personnel.

If PCB-bearing equipment is removed or worked on improperly, there is a risk of exposure to PCBs. Polychlorinated biphenyls are potential carcinogens and exposure may cause liver damage. Routes of entry into humans and other animals include inhalation, ingestion, and absorption (Hathaway 1991, Lewis 1991, and Verschueren 1983). Compliance with all applicable laws and regulations would minimize safety and occupational health hazards to personnel.

A long-term, positive impact would occur as a result of enlisted personnel living in dormitories that are free of these materials.

### **4.3.2 Alternative A Minimization Measures**

The following measures are required or recommended:

- a. The proposed project shall comply with all applicable regulations, instructions, and standards.

- b. The proponent/contractor should contact the Civil Engineer Group Environmental Coordinator for the Edwards AFB adopted USACOE Guide Specification for Military Construction, Section 02080, titled *Removal and Disposal of Asbestos Material*. The adopted specification would be applicable to all asbestos-related work at Edwards AFB.
- c. No asbestos-containing building material shall be used on Edwards AFB.
- d. Any ACM that has the potential to be disturbed as a result of implementing any of the alternative actions must first be abated by qualified and trained asbestos workers, as defined in 29 CFR 1926.1101.
- e. The contractor will be registered with Cal-OSHA prior to implementing lead-based paint abatement activities and must fully understand and adhere to the contents of the following:
  - 1) Title 8 CCR, Section 1532, *Lead Exposure in Construction, Interim Final Rule*.
  - 2) Title 8 CCR, Section 3203, *Illness and Injury Prevention Program*.
  - 3) 29 CFR 1910.1025, *Federal Occupational Safety and Health Standards, Lead*.
  - 4) 29 CFR 1926.62, *Lead in Construction Standard*.
  - 5) 40 CFR Part 61.141 Subpart M, *National Emission Standards for Hazardous Air Pollutants*.
  - 6) Section 1017 of the *Residential Lead-Based Paint Hazard Reduction Act of 1992* (Title X), the United States Department of Housing and Urban Development *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*.
- f. Any LBP that has the potential to be disturbed as a result of implementing the proposed project must first be abated by qualified and trained LBP workers as defined in Title 8 CCR Section 1532.1 and 29 CFR 1926.62.
- g. The proponent/contractor should contact the Civil Engineer Group Environmental Coordinator for Edwards AFB adopted USACOE Guide Specifications for Military Construction, Section 02090, titled, *Work Involving Lead-based Paint*. The adopted specification would be applicable to all LBP related work at Edwards AFB.
- h. The proponent/contractor should contact the Civil Engineer Group Environmental Coordinator to determine if further sampling is required to detect the presence of LBP.
- i. The contractor shall submit an Abatement and Disposal Plan as written in 29 CFR 1926.1101, *Asbestos*, for coordination to the Civil Engineer Group Environmental Coordinator prior to ACM and LBP abatement activities. Coordination by the contractor is required to ensure proper engineering controls are in place for the abatement and disposal. This would include appropriate LBP testing requirements for waste characterization.

- j. If mercury or chromium is detected, the proponent/contractor shall coordinate the removal, safe handling, and disposal through Bioenvironmental Engineering to ensure proper engineering controls are in place prior to any activities that would disturb the paint.
- k. The contractor will contact Air Force Flight Test Center/Environmental Management Compliance Branch (AFFTC/EMCC) for identification and proper means of removal, safe handling, and disposal of PCB-contaminated equipment. The PCB and PCB-containing equipment may not be stored on Base.
- l. All new electrical equipment procured for the project (i.e., switches, transformers, etc.) should be specified to contain no detectable PCB.

#### **4.3.3 Alternative B Impacts**

The impacts under this alternative would be the same as those under Alternative A.

#### **4.3.4 Alternative B Minimization Measures**

The minimization measures for this alternative are the same as those under Alternative A.

#### **4.3.5 Alternative C Impacts**

The impacts under this alternative would be the same as those under Alternative A.

#### **4.3.6 Alternative C Minimization Measures**

The minimization measures for this alternative are the same as those under Alternative A.

#### **4.3.7 Alternative D Impacts**

The impacts under this alternative would be the same as those under Alternative A.

#### **4.3.8 Alternative D Minimization Measures**

The minimization measures for this alternative are the same as those under Alternative A.

#### **4.3.9 Alternative E Impacts**

No construction or demolition activities would occur under this alternative. However, enlisted personnel would continue to occupy the older existing dormitories that may have asbestos, heavy metal-based paints, and PCBs. Therefore, exposure to these substances could potentially occur.

#### **4.3.10 Alternative E Minimization Measures**

No minimization measures are required or recommended.

## **4.4 Hazardous Materials and Waste**

### **4.4.1 Alternative A Impacts**

#### **4.4.1.1 Hazardous Materials**

The types and quantities of hazardous materials used during the construction of the new dormitories and the demolition of the old dormitories would not be different than those already used on Base. Compliance with all applicable standards and/or regulations addressing hazardous materials management is required and would ensure proper handling, use, and storage of these substances on Base.

#### **4.4.1.2 Hazardous Waste**

The types and quantities of hazardous wastes generated during the construction of new dormitories and the demolition of four old existing dormitories would not be different from those already generated on Base. Compliance with all applicable standards and/or regulations addressing hazardous waste management is required, and would ensure proper handling, storage, and disposal of hazardous wastes generated on Base. Standard operating procedures identified in the *Edwards Air Force Base Hazardous Waste Management Plan Number 32-7042* governing the control of hazardous waste would prevent the creation of new hazardous waste sites.

Asbestos, heavy metal-based paints including lead, chromium, and mercury; and PCBs may be encountered in Buildings 2410, 2411, 2413, and 2418 during demolition activities. Asbestos waste is considered a hazardous waste by the State of California and must be disposed of properly. Heavy metal-based paints and PCBs are considered hazardous wastes and must be disposed of properly.

#### **4.4.1.3 Solid Waste**

The proposed project would generate an estimated 7,000 cubic yards of construction/demolition waste (CDW). In fiscal year 2001, CDW disposed of at the Main Base landfill was estimated at 1,610 tons. This volume of solid waste would be required to be disposed of at an approved off-Base licensed landfill, as stipulated by contractual agreement (Baird 1998). This policy of requiring off-Base disposal of most contractor-generated solid waste ensures that no impacts to the Main Base landfill capacity occur. No impact to off-Base landfills would be anticipated from their continued use by contractors due to the relatively small quantity of waste generated per project.

Some waste generated from the proposed action could be recycled (e.g., concrete, asphalt paving, metals, etc.). Reuse or recycling of appropriate materials could reduce the amount of solid waste disposed of at landfills (either on or off Base), resulting in an incremental positive impact to solid waste management. It could also provide alternate sources for required building materials, potentially reducing future impacts on nonrenewable resources.

#### 4.4.2 Alternative A Minimization Measures

The following minimization measures are required or recommended:

- a. In accordance with 29 CFR 1910.1200 on hazard communication, all hazardous materials shall be documented with required MSDSs as part of a complete hazardous materials inventory. A copy of the inventory and all pertinent MSDSs would be submitted to Bioenvironmental Engineering in support of the Base Hazardous Materials Program and Air Force Hazard Communication Program (AFOSH Standard 48-21).
- b. The MSDS for each hazardous material used at the construction site shall be present during project activities.
- c. All transporters must have a U.S. EPA identification number and be licensed to transport hazardous materials/wastes in California, through any State, and within the destination State. All transporters must have liability insurance coverage in accordance with applicable regulations.
- d. At least 48 hours prior to hazardous materials offloading, the Base Chief of Safety (AFFTC/SE) shall be notified.
- e. Any hazardous waste generated during dormitory construction/demolition shall be handled in accordance with applicable regulations: 49 CFR 171-177, *Waste Transportation and Packaging*; 40 CFR 260-299, Subtitle C, *Storage, Treatment, and Disposal of Waste*; AFI 32-7042, *Solid and Hazardous Waste Compliance*; and the *Edwards Air Force Base Hazardous Waste Management Plan Number 32-7042*.
- f. It is the responsibility of the proponent/contractor to transport unusable residual materials or partially filled containers to an EPA-approved, off-Base disposal site.
- g. Hazardous wastes are subject to land disposal restriction requirements. Signed hazardous waste disposal manifests shall be required for ACM, lead-, mercury-, chromium-, and other heavy metal-based paints, and/or PCB-containing wastes prior to transportation for offsite disposal to an EPA-approved landfill.
- h. The proponent/contractor shall submit asbestos, heavy metal-based paints, and PCB manifests to the AFFTC/EMCC manager.
- i. Demolition activities may disturb ACM or commercial paints containing lead, chromium, mercury, or other heavy metals. The proponent/contractor shall accomplish a survey and an abatement plan.
- j. No asbestos-containing building material shall be used on Edwards AFB.
- k. All friable asbestos removed for disposal shall be transported to an EPA-approved, off-Base hazardous waste landfill. All nonfriable asbestos removed for disposal shall be taken to an EPA-approved, nonhazardous waste landfill.
- l. The contractor shall not sweep removed LBP from the paved surfaces and the area should be kept wet and under control during the paint removal.
- m. Equipment, including pre-1976 fluorescent light ballasts, containing PCB capacitors with PCB greater than 5 ppm must be disposed of as PCB/PCB-contaminated waste in accordance with 40 CFR 761, *Polychlorinated Biphenyls (PCBs) Manufacturing*,

*Processing, Distribution in Commerce, and Use Prohibitions*, and CCR Title 26, *Toxics*. The PCB wastes that are to be disposed of by landfill will use an EPA-approved landfill. The proponent/contractor shall coordinate PCB handling and removal activities.

- n. This project will generate CDW. The proponent/contractor shall be responsible for transporting solid waste to a State-licensed facility.
- o. The contractor should segregate recyclable and reusable materials from solid waste for delivery to the appropriate on- and off-Base recovery or disposal facilities. The 95<sup>th</sup> Civil Engineer Squadron should be contacted regarding recyclable debris.

#### **4.4.3 Alternative B Impacts**

The impacts under this alternative would be the same as those under Alternative A.

#### **4.4.4 Alternative B Minimization Measures**

The minimization measures for this alternative are the same as those under Alternative A.

#### **4.4.5 Alternative C Impacts**

The impacts under this alternative would be the same as those under Alternative A.

#### **4.4.6 Alternative C Minimization Measures**

The minimization measures for this alternative are the same as those under Alternative A.

#### **4.4.7 Alternative D Impacts**

The impacts under this alternative would be the same as those under Alternative A.

#### **4.4.8 Alternative D Minimization Measures**

The minimization measures for this alternative are the same as those under Alternative A.

#### **4.4.9 Alternative E Impacts**

Under this alternative, construction of the new dormitories and the demolition of the old dormitories would not occur. Therefore, no impacts to hazardous materials and waste are anticipated.

#### **4.4.10 Alternative E Minimization Measures**

No minimization measures are required or recommended.

## 4.5 Biological Resources

### 4.5.1 Alternative A Impacts

The proposed project involves ground-disturbing activities (e.g., trenching, grading, off-road vehicle traffic, etc.). Ground-disturbing activities have the potential to impact desert tortoises, as well as other ground dwelling species. These impacts may be direct by physically injuring or killing individuals, or indirect by disturbing habitat or otherwise creating conditions that are adverse to species success. This constitutes a short-term negative impact to Biological Resources. The minimization measures listed in Section 4.5.2 would help reduce any potential impacts. Therefore, no significant impacts are anticipated.

The proposed project would require the removal of vegetation over an area of approximately 11 acres. Vegetation characteristics (e.g., type, quantity, configuration, etc.) are defining elements of habitat. Vegetation provides cover, food, and shade among other key factors necessary to the success of species. Furthermore, vegetation removal is known to result in soil erosion and can contribute to flooding through alteration of water courses. Such changes to natural movements of soil and water can result in impacts to ground-dwelling species.

### 4.5.2 Alternative A Minimization Measures

The following minimization measures are required or recommended:

- a. The proponent/contractor shall adhere to the Terms and Conditions of the *Biological Opinion for Routine Operations and Facility Construction within the Cantonment Areas of Main and South Bases, Edwards Air Force Base, California* (1-6-91-F-28) (USFWS 1991) and the *Biological Opinion for the Development and Operation of Eight Borrow Pits throughout the Air Force Flight Test Center in Kern, Los Angeles, and San Bernardino Counties, California* (1-8-96-F-56) (USFWS 1997).
  - 1) All workers and visitors to work sites shall receive a desert tortoise awareness briefing that defines their responsibilities and liabilities under the ESA. Project personnel should notify Sir Force Flight Test Center/Environmental Management Conservation's (AFFTC/EMXC's) J-TECH contractor (JT3/CH2M HILL) at least 3 days prior to starting project activities. Advanced notice is needed to schedule briefings, presurveys, and monitoring.
  - 2) If a desert tortoise burrow is encountered within the project area or at the borrow site during project activities, the burrow shall be avoided to the maximum extent feasible. If avoidance is not possible, an authorized AFFTC biologist shall excavate the burrow with hand tools only. If a desert tortoise is found in a burrow to be excavated, it shall be moved up to 250 feet from where it was found and placed in a natural burrow of similar shape and size. If a natural burrow is not available, the desert tortoise shall be placed into a hand-excavated burrow of similar shape and size as the original one.
  - 3) Desert tortoises found aboveground within the project area shall be moved out of harms way by an authorized biologist to a place in the shade of a shrub up to 250 feet from where it was found.



- 4) Construction areas shall be clearly fenced, marked, or flagged at the outer boundaries to define the limits of work activities. All workers shall be instructed to confine their activities to within marked areas.
  - 5) Laydown, parking, and staging areas shall be restricted to previously disturbed areas to the maximum extent possible.
  - 6) Vehicles should remain on established roads. If this is not possible in the project area, an authorized biologist shall survey the route to be traveled. Equipment and vehicle operators shall be alert for desert tortoises and other wildlife in and along access routes. All desert tortoise burrows shall be avoided during off-road travel. When traveling off road, speed limits shall not exceed 5 mph and shrubs shall be avoided as much as possible.
  - 7) Preactivity surveys (48 hours before construction begins) shall be conducted in areas of desert tortoise habitat by authorized biologists as determined by the Base wildlife biologist. If monitoring is deemed necessary by the Base biologist, the monitor shall be available to ensure compliance with any minimization measures and subsequent Terms and Conditions of the Biological Opinions.
  - 8) At no time shall project personnel or site visitors touch, move, harass, harm, or kill any desert tortoise. Workers and visitors shall immediately report all desert tortoise sightings to AFFTC/EMXC.
  - 9) Workers and site visitors shall check under parked vehicles for desert tortoises and other wildlife species before moving vehicles. If a desert tortoise is found under a vehicle, AFFTC/EMXC shall be notified immediately so that the desert tortoise can be moved to a safe area.
  - 10) All trash shall be placed in raven-proof receptacles for proper disposal to reduce the attractiveness of desert tortoise predators (i.e., coyotes, common ravens).
  - 11) If any wildlife is trapped in excavations at the work site, AFFTC/EMXC shall be immediately notified. An inspection for trapped wildlife shall be made prior to backfilling. All open excavations shall have a ramp with a 3:1 slope at each end to facilitate escape of trapped wildlife. Excavations left overnight shall be secured before leaving the site. Exclusionary fencing or plywood may be used to prevent wildlife from becoming trapped in excavations.
- b. Buildings 2410, 2411, 2413, and 2418 shall be surveyed for the presence of nesting birds prior to the start of work activities. A biological monitor may be required. If nesting birds are discovered during work activities, all work must stop and the proponent/contractor must contact the Environmental Management Office immediately. Federal contractors are potentially subject to criminal liability and must possess a permit to conduct a depredation activity.
  - c. Prior to commencement of work activities at approved borrow sites, the proponent/contractor shall specifically establish approved locations, perimeters, and dimensions of the approved site. To establish these coordinates, the contractor shall consult with Environmental Management to identify specific environmental issues including, but not limited to, endangered species, threatened species, and sensitive species.

- d. In compliance with 95<sup>th</sup> Civil Engineering Group (95 CEG/CEC) policy, all existing trees and shrubs are to be left in place, salvaged and replanted, or demolished. The 95 CEG/CEC will decide what treatment is to be implemented (De La Garza 1998).

#### **4.5.3 Alternative B Impacts**

The impacts under this alternative would be the same as those under Alternative A.

#### **4.5.4 Alternative B Minimization Measures**

The minimization measures for this alternative are the same as those under Alternative A.

#### **4.5.5 Alternative C Impacts**

The impacts under this alternative would be the same as those under Alternative A.

#### **4.5.6 Alternative C Minimization Measures**

The minimization measures for this alternative are the same as those under Alternative A.

#### **4.5.7 Alternative D Impacts**

The impacts under this alternative would be the same as those under Alternative A.

#### **4.5.8 Alternative D Minimization Measures**

The minimization measures for this alternative are the same as those under Alternative A.

#### **4.5.9 Alternative E Impacts**

Under this alternative, construction of the new dormitories and the demolition of the old dormitories would not occur. Therefore, no impacts to biological resources are anticipated.

#### **4.5.10 Alternative E Minimization Measures**

No minimization measures are required or recommended.

### **4.6 Geology and Soils**

#### **4.6.1 Alternative A Impacts**

##### **4.6.1.1 Topography**

Site preparation, grading, and construction activities would disturb soil surfaces. A short-term erosion impact would be expected during grading and site preparation when soils on the existing slope become exposed to high winds, heavy rains, or vehicular/heavy equipment use. Minimal soil erosion impacts are anticipated following completion of the construction of the new dormitories because a majority of disturbed soil surfaces would most likely be paved,

landscaped, or otherwise treated. Minimization measures are recommended to further reduce any impacts. Therefore, no significant impacts are anticipated.

#### **4.6.1.2 Material Site Use**

Fill material is a nonrenewable natural resource that is available at Edwards AFB. Much of the fill material would most likely be obtained from an approved on-Base borrow site. Approved off-Base sources of fill material may be used to meet specific soil type requirements and/or to augment and avoid depletion of finite, on-Base resources. However, fill material is available and the minimization measures listed below should minimize any potential impacts.

A discussion of impacts to biological resources associated with the use of borrow sites can be found in Section 4.5, Biological Resources.

#### **4.6.1.3 Seismicity**

Because no faults on Edwards AFB are recognized as active, and because the low level of seismic activity at the Base, most of the seismic hazard is considered to be shaking from activity along the San Andreas and Garlock Faults. Maximum magnitudes of events along these faults are postulated to be greater than magnitude 8 on the Richter scale; this is sufficient to cause widespread, major damage. An earthquake of magnitude 6 or greater on the Palmdale segment of the San Andreas Fault could cause damage at Edwards AFB. The extent of the damage would have a direct relationship to the extent of the seismic activities.

Damage could be expected to occur to the newly constructed dormitories. The use of building codes with seismic construction requirements would reduce the potential impacts. No significant impacts are anticipated.

### **4.6.2 Alternative A Minimization Measures**

The following minimization measures are required or recommended:

- a. All earthwork should be planned and conducted to minimize the duration that soils would be left unprotected. The extent of the area of disturbance necessary to accomplish the project should be minimized. Ground-disturbing activities should be delayed during high-wind conditions (in excess of 25 mph). Vehicular traffic, grading, and digging should not be permitted in the project area during high-wind conditions.
- b. Exposed surfaces should be periodically sprayed with water.
- c. Prior to commencement of work activities at approved borrow sites, the proponent/contractor shall specifically establish approved locations, perimeters, and dimensions of the approved site. To establish these coordinates, the contractor shall consult with Air Force Flight Test Center Environmental Management (AFFTC/EM) to identify specific environmental issues including, but not limited to, natural resources, cultural resources, and ERP concerns.
- d. Fill material shall be delivered according to all applicable Federal, State, and local regulations regarding transport of fill material. Contact Environmental Management for assistance.

- e. Design standards to be followed include: Air Force Manual 88-3, *Seismic Design of Buildings for Seismic Zone 4*; The USACOE Guide Specification No. 13080, *Seismic Protection for Mechanical and Electrical Equipment*; the Uniform Building Code Chapters 23, 26, 27, and 29 with the applicable California Supplements; and Kern County building codes.

#### **4.6.3 Alternative B Impacts**

The impacts under this alternative would be the same as those under Alternative A.

#### **4.6.4 Alternative B Minimization Measures**

The minimization measures for this alternative are the same as those under Alternative A.

#### **4.6.5 Alternative C Impacts**

The impacts under this alternative would be the same as those under Alternative A.

#### **4.6.6 Alternative C Minimization Measures**

The minimization measures for this alternative are the same as those under Alternative A.

#### **4.6.7 Alternative D Impacts**

The impacts under this alternative would be the same as those under Alternative A.

#### **4.6.8 Alternative D Minimization Measures**

The minimization measures for this alternative are the same as those under Alternative A.

#### **4.6.9 Alternative E Impacts**

Under this alternative, construction of the new dormitories and the demolition of the old dormitories would not occur. Therefore, no impacts to Geology and Soils are anticipated.

#### **4.6.10 Alternative E Minimization Measures**

No minimization measures are required or recommended.

### **4.7 Socioeconomics**

#### **4.7.1 Alternative A Impacts**

The proposed project would provide a short-term, incrementally, positive impact to the economy of the Antelope Valley from increased revenue generation. This increase in revenue is expected to occur as a result of money spent off Base for construction materials and services.

It is unlikely that the proposed action to demolish the existing dormitories would qualify as underutilized, unutilized, excess, or surplus, and therefore available for use by other units of

government or non-profit organizations for the homeless by Housing and Urban Development. In addition, the remote location of Edwards AFB precludes the feasibility of utilizing the dormitories for homeless housing.

#### **4.7.2 Alternative A Minimization Measures**

No minimization measures are required or recommended.

#### **4.7.3 Alternative B Impacts**

The impacts under this alternative would be the same as those under Alternative A.

#### **4.7.4 Alternative B Minimization Measures**

No minimization measures are required or recommended.

#### **4.7.5 Alternative C Impacts**

The impacts under this alternative would be the same as those under Alternative A.

#### **4.7.6 Alternative C Minimization Measures**

No minimization measures are required or recommended.

#### **4.7.7 Alternative D Impacts**

The impacts under this alternative would be the same as those under Alternative A.

#### **4.7.8 Alternative D Minimization Measures**

No minimization measures are required or recommended.

#### **4.7.9 Alternative E Impacts**

Under this alternative, construction of the new dormitories and the demolition of the old dormitories would not occur. No revenue would be generated in the local economy as a result of this alternative. Therefore, no significant impacts are anticipated.

#### **4.7.10 Alternative E Minimization Measures**

No minimization measures are required or recommended.

### **4.8 Infrastructure**

#### **4.8.1 Alternative A Impacts**

Proposed action activities have the potential to impact existing subsurface utility lines during excavations. This could result in service interruptions, the repair and replacement of the severed utility line, and/or the inability to complete or deliver required activities or services.

Proposed project activities have the potential to impact the transportation system through traffic delays or the temporary closure of roadways. Traffic delays are anticipated due to slow-moving equipment using the existing roadways. These impacts would be expected to be short-term, lasting only as long as required to accomplish the work. Road closures or the rerouting of traffic would be temporary, lasting only as long as was necessary to ensure personnel safety while required work was completed. Early coordination with appropriate Base organization would ensure necessary safety precautions are taken, and would allow ample advance notice to affected commuters and personnel. No significant impacts are anticipated.

#### **4.8.2 Alternative A Minimization Measures**

The following minimization measures are required or recommended:

- a. The proponent/contractor shall be responsible for obtaining an Air Force Form 103, *Base Civil Engineering Work Clearance Request* (digging permit). Contact the Base Civil Engineer Infrastructure Controller for coordination.
- b. Some utilities require a representative to be present on site at all times when motorized construction equipment is being used closer than 20 feet from existing lines. The project sponsor should coordinate with the Civil Engineer Group in order to identify the location of existing lines.
- c. If current as-built drawings indicating existing utility lines are not available, no mechanical digging should be performed within 4 feet of utilities or communication cables until they are physically exposed by hand digging. Any capping of utilities should take place 5 feet beyond the existing footprint of the buildings.
- d. All work that would affect closure, rerouting, or other modification of roadways, streets or highways must be coordinated 15 working days in advance with the Security Forces, Base Fire Department, and the Public Affairs Office. A current copy of the *Manual of Traffic Controls for Construction and Maintenance Work Zones* (California Department of Transportation 1990) will be used as guidance for traffic signs.

#### **4.8.3 Alternative B Impacts**

The impacts under this alternative would be the same as those under Alternative A.

#### **4.8.4 Alternative B Minimization Measures**

The minimization measures for this alternative are the same as those under Alternative A.

#### **4.8.5 Alternative C Impacts**

The impacts under this alternative would be the same as those under Alternative A.

#### **4.8.6 Alternative C Minimization Measures**

The minimization measures for this alternative are the same as those under Alternative A.

#### **4.8.7 Alternative D Impacts**

The impacts under this alternative would be the same as those under Alternative A.

#### **4.8.8 Alternative D Minimization Measures**

The minimization measures for this alternative are the same as those under Alternative A.

#### **4.8.9 Alternative E Impacts**

Under this alternative, construction of the new dormitories and the demolition of the old dormitories would not occur. Therefore, no impacts to infrastructure are anticipated.

#### **4.8.10 Alternative E Minimization Measures**

No minimization measures are required or recommended.

### **4.9 Environmental Justice and Protection of Children**

#### **4.9.1 Alternative A Impacts**

Edwards AFB's proposed action would not in itself create any advantage or disadvantage for any group or individual. Edwards AFB is a limited-access Base located in a remote area and has approved spill prevention and spill cleanup plans. Both of these factors limit the possibility of anyone being exposed to adverse conditions. Edwards AFB is also an equal opportunity employer. The construction of new dormitories at Edwards AFB is not expected to cause disproportionately high and adverse health or environmental effects on minority or low-income populations or children. Children and the general public are not likely to come in contact with these areas. Harmful effects on either the natural or human environment are not anticipated. Edwards AFB would address, however, any project-specific issues regarding disproportionate adverse health or environmental effects on children, minority, or low-income groups, should they arise, and would use the best environmental management practices to ensure compliance with applicable regulatory requirements.

#### **4.9.2 Alternative A Minimization Measures**

No minimization measures are required or recommended.

#### **4.9.3 Alternative B Impacts**

The impacts under this alternative would be the same as those under Alternative A.

#### **4.9.4 Alternative B Minimization Measures**

No minimization measures are required or recommended.

#### **4.9.5 Alternative C Impacts**

The impacts under this alternative would be the same as those under Alternative A.

#### **4.9.6 Alternative C Minimization Measures**

No minimization measures are required or recommended.

#### **4.9.7 Alternative D Impacts**

The impacts under this alternative would be the same as those under Alternative A.

#### **4.9.8 Alternative D Minimization Measures**

No minimization measures are required or recommended.

#### **4.9.9 Alternative E Impacts**

The impacts under this alternative would be the same as those under Alternative A.

#### **4.9.10 Alternative E Minimization Measures**

No minimization measures are required or recommended.

### **4.10 NEPA Mandated Analysis**

#### **4.10.1 Cumulative Impacts**

Cumulative impacts are defined in this document as those that would result from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions. The following cumulative effects would be anticipated as a result of Alternative A.

- a. Air Quality – Pollutant emissions (NO<sub>x</sub>, VOC, PM<sub>10</sub>, and HAPs) associated with the construction and demolition of the dormitories have been shown to be clearly *de minimis*. These emission levels, when combined with those from other foreseeable projects including construction of the new gym, would comprise a minimal proportion of the baseline emissions. In addition, these emissions, when totaled, are less than 10 percent of the total baseline and therefore are not regionally significant. Compliance with all CAA Title III HAP requirements, or any more stringent State or local requirements would be required. Consequently, significant cumulative impacts to air quality would not occur.
- b. Safety and Occupational Health – Construction of the new dormitories would provide living quarters for enlisted personnel that are free of asbestos, heavy-metal based paints, and PCBs. This project, in addition to construction of the new gym, would provide a positive cumulative impact to the safety and occupational health of Base residents.
- c. Socioeconomics – The revenue generated from the proposed project in conjunction with other projects would provide a positive cumulative impact to the economy of the Antelope Valley.

Cumulative impacts associated with Alternatives B, C, and D are anticipated to be the same as those listed for Alternative A.



#### **4.10.2 Unavoidable Adverse Impacts**

Unavoidable adverse effects include those that are negative, occurring regardless of any identified minimization measures.

Air Quality – Pollutant emissions associated with the construction of Phase II of the dormitories and the demolition of the old dormitories are unavoidable.

Unavoidable adverse impacts associated with Alternatives B, C, and D are anticipated to be the same as those listed for Alternative A.

#### **4.10.3 Short-Term Uses Versus Long-Term Productivity of the Environment**

The construction of new facilities and the demolition of inadequate existing facilities at Edwards AFB have been a consistent element of the work program for various Base organizations. These projects have supported the changing facility needs of various organizations at Edwards AFB, and have not significantly altered the productivity of the environment. Continuation of such activities at Edwards AFB is not expected to change this condition. Measures have been included to minimize potential environmental impacts to identified sensitive resources and to all personnel. Therefore, any anticipated environmental impacts would be expected to be short term.

#### **4.10.4 Irreversible and Irretrievable Commitment of Resources**

Irreversible and irretrievable commitments of physical, natural, and socioeconomic resources would result from Alternatives A, B, C, and D. These include the use of materials during construction that cannot be recycled at the end of the useful life of the products and the funds allocated for the work.

No irreversible and irretrievable commitments of physical, natural, and socioeconomic resources are anticipated from Alternative E.

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**APPENDIX A**  
**AIR QUALITY CALCULATIONS**

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## DIRECT AIR QUALITY EMISSIONS

Mobil Equipment Type	Emission Factors (lb/hr)			# Hours	# Units	Mobil Equipment Type	Emissions (lb/mile or hr/yr)		
	CO	NOx	ROG				CO	NOx	ROG
Track Tractor	0.346	1.26	0.121			Track Tractor	0	0	0
Wheeled Tractor	3.59	1.269	0.188			Wheeled Tractor	0	0	0
Track Loaders	0.201	0.827	0.098	100	2	Track Loaders	40.2	165.4	19.6
Wheeled Loaders	0.572	1.89	0.25	150	2	Wheeled Loaders	171.6	567	75
Motor Graders	0.151	0.713	0.04			Motor Graders	0	0	0
Off-Road Trucks	1.794	4.166	0.192			Off-Road Trucks	0	0	0
Misc. Wheeled	0.675	1.691	0.152			Misc. Wheeled	0	0	0
Gas Forklifts	17	0.412	0.56	300	2	Gas Forklifts	10200	247.2	336
Diesel Forklifts	0.675	1.691	0.152	100	1	Diesel Forklifts	67.5	169.1	15.2
Shipping Trucks	0.675	1.691	0.152			Shipping Trucks	0	0	0
Track Dozers	0.346	1.26	0.121	300	2	Track Dozers	207.6	756	72.6
Graders	0.151	0.713	0.04	300	2	Graders	90.6	427.8	24
Excavator	0.675	1.691	0.152	100	4	Excavator	270	676.4	60.8
Haul Trucks	1.794	4.166	0.192	300	7	Haul Trucks	3767.4	8748.6	403.2
Scraper	1.257	3.84	0.282			Scraper	0	0	0
LDGV	0.237	0.007	0.021	18304	20	LDGV	86760.96	2562.56	7687.68
LDGT	0.068	0.003	0.007			LDGT	0	0	0
LDDT	0.008	0.004	0.002			LDDT	0	0	0
HDGT	0.066	0.01	0.006			HDGT	0	0	0
HDDT	0.053	0.045	0.014	9100	2	HDDT	964.6	819	254.8
Backhoe Loader	0.005094	0.002271	0.004829	150	2	Backhoe	1.5282	0.6813	1.4487
Soil Compactor as LDDT	0.008	0.004	0.002	100	2	Soil Compactor	1.6	0.8	0.4
Roller	0.346	1.26	0.121	50	1	Roller	17.3	63	6.05
						Total Motor Vehicle Emissions	102542	15139.06	8950.329
								Emissions in Tons/Year	
							CO	NOx	ROG
							51.27099	7.56953	4.475164



DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS AIR FORCE FLIGHT TEST CENTER (AFMC)  
EDWARDS AIR FORCE BASE, CALIFORNIA

MEMORANDUM FOR AFFTC/CV

FROM: AFFTC/EM  
5 East Popson Avenue, Building 2650A  
Edwards AFB CA 93524-1130

SUBJECT: Clean Air Act Conformity Statement for Control No. 99-217, *Dormitory Replacement Phase II (MILCON 2003)*

1. The following finding is made on the need for a conformity statement under the *Clean Air Act* with respect to the Proposed Action.

a. The Proposed Action is located in the Kern County Air Pollution Control District (KCAPCD). Under regulations promulgated pursuant to the *Clean Air Act*, Title 42 United States Code (USC) Part 7506 (c), the portion of the project area regulated by the KCAPCD is located in a *Serious* nonattainment area for ozone. The *de minimis* level set for this area for emissions of ozone precursor pollutants (volatile organic compounds [VOC] or oxides of nitrogen [NO<sub>x</sub>]), in accordance with Title 40 Code of Federal Regulation (CFR) Part 51.853/93.153 (b)(1) and KCAPCD Rule 210.7, is up to 50 tons per pollutant (VOC or NO<sub>x</sub>) per year per action.

b. For the KCAPCD, the 1990 regional planning baseline emission inventories for ozone precursor pollutants are included in the 1994 California Ozone State Implementation Plan. The baseline planning values for KCAPCD are 14,965 tons per year (tpy) and 6,205 tpy of NO<sub>x</sub> and VOC, respectively. In accordance with 40 CFR 93.153, the 10-percent threshold values for determination of regional significance for KCAPCD are 1,496.5 and 620.5 tpy of NO<sub>x</sub> and VOC, respectively.

c. It has been determined that the relevant air emissions for this action are 16.68 tons of NO<sub>x</sub> and 5.37 tons of VOC per year. The direct and indirect emissions, when totaled, are less than the *de minimis* amounts specified in Title 40 CFR 51.853/93.153 (b)(1), and are less than the 10-percent threshold values for determination of regional significance; therefore, a conformity determination is not required.

2. Should you have any questions with respect to this finding, please direct them to Christopher Rush at (661) 277-1425.

GERALD E. CALLAHAN, Chief  
Environmental Quality Division

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